SALURBAL TEAM MEETING

CDMX 2023

Climate and urban health workshop

Tuesday, March 21, 2023

Ana Diez Roux

SALURBAL Urban Health in Latin America

Agenda

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Time	Topic	Facilitator
14:00-14:15	Welcome and introductions	Ana Diez Roux
14:15-14:40	Assessment of historical temperature exposure and projection of future heat data	Maryia Bakhtsiyarava
14:40-15:20	MS85 heat analysis	Josiah Kephart
15:20-15:40	***SALURBreak***	
15:40-16:30	Using city level heat-mortality outputs to examine modifying factors: MS134 and MS157 and Q&A	Maryia Bakhtsiyarava, Josiah Kephart
16:30-16:45	Climate change and health evidence review: update and preliminary findings	Katy Indvik
16:45-17:00	Closing	Ana Diez Roux

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Why is research on climate change and health important?

Visibility and call to action-health as an important motivator

Highlight health co-benefits of mitigation actions

Identify adaptation strategies that can minimize health consequences

Why is research in urban areas (esp. LMIC) important?

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- **Urban environments continue to grow and have a major impact on climate change globally**.
  - By 2030 over two thirds of the world's population will live in urban areas (majority in urban areas of LMIC)
  - Cities contribute a large proportion (>70%) of global energy related carbon
  - Major opportunities for mitigation

- **Urban areas of LMIC are especially vulnerable to adverse effects of climate change.**
  - Geographic location
  - Rapid growth with poor planning
  - Very high density cities, informality, inadequate and precarious housing
  - Poor infrastructure and high levels of social inequality
  - Critical need for adaptation policies as well as mitigation

- **Urban policies can support both mitigation and adaptation to climate change**
  - Early warnings and health care related
  - Impact on urban form, transportation, car dependency, greening, energy efficiency, and food systems and consumption
  - Evidence showing the impact of these strategies on health and health equity in the growing urban areas of LMIC is critically needed.

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Building Climate Resilience

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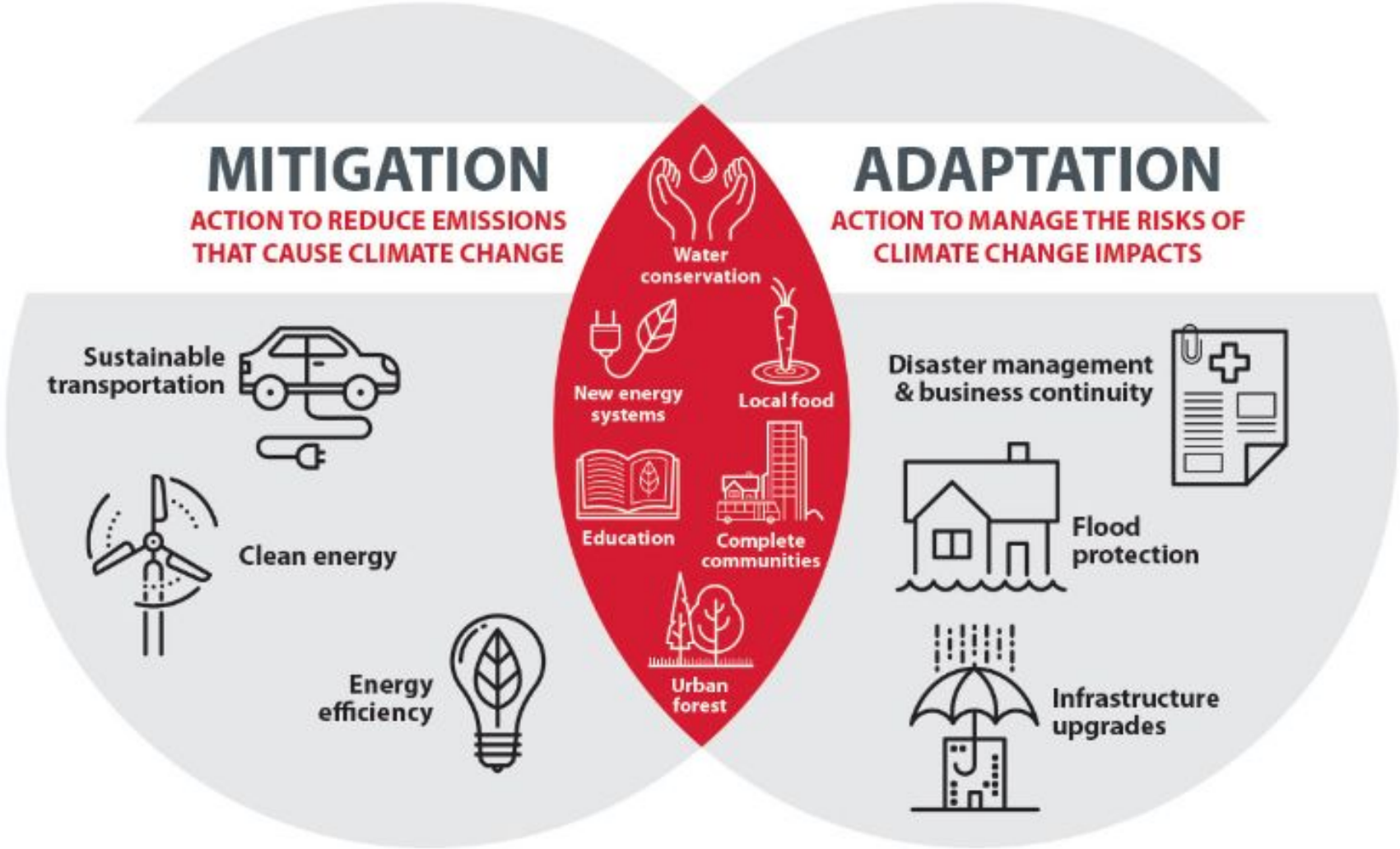

https://www.calgary.ca/environment/climate/climate-change.html

LMIC and Latin America underrepresented in current research (Berrang –Forde et al 2021)

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- Supervised machine learning and other natural language processing methods to map scientific literature on climate change and health published between Jan 1, 2013, and April 9, 2020, English only.

- Identified ~16,000 studies mostly impact studies, with mitigation and adaptation responses and their co-benefits and co-risks remaining niche topics.
  - Air quality and heat stress are the most frequently studied exposures, with all-cause mortality and infectious disease incidence being the most frequently studied health outcomes.
  - Seasonality, extreme weather events, heat, and weather variability are the most frequently studied climate-related hazards.
  - Major gaps in evidence for mental health, undernutrition, and maternal and child health.
  - Evidence base is dominated by studies from high-income countries and China, with scant evidence from low-income counties, which often suffer most from the health consequences of climate change.

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LMIC underrepresented in current research

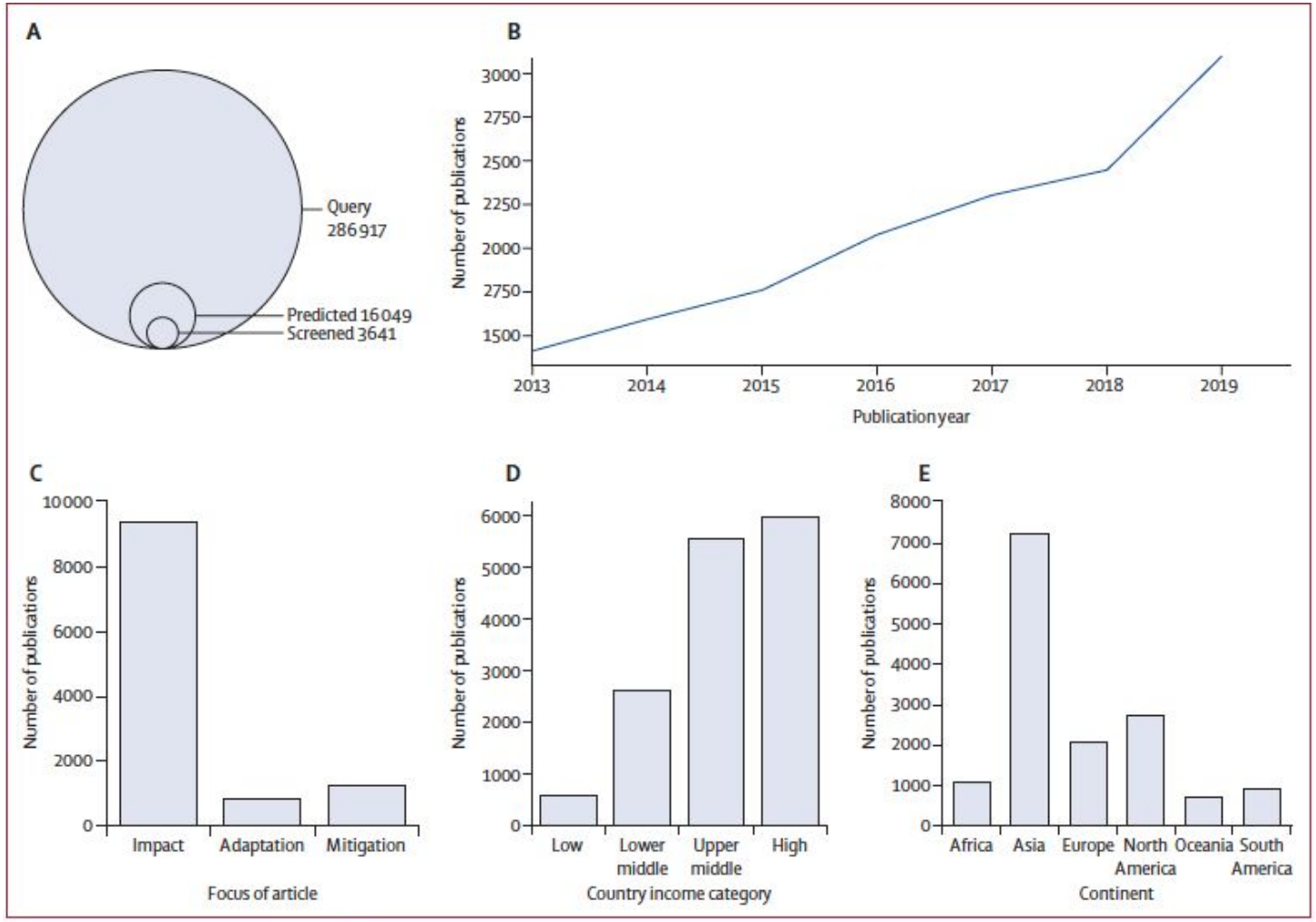

Figure 1: **Descriptive summary of included articles**
(A) Sampling frame, indicating the number of articles that were manually screened by investigators and those that were predicted to be relevant (final dataset for inclusion), compared with the initial number of documents retrieved from search string queries. (B) For relevant abstracts, trends in publications over time indicate a continued increase in the volume of literature on climate and health. Literature published between Jan 1, 2013, and April 9, 2020, were included. Bar graphs show the number of publications by impact, adaptation, and mitigation categories (C), national income category as per World Bank classifications (D), and global regions (E).

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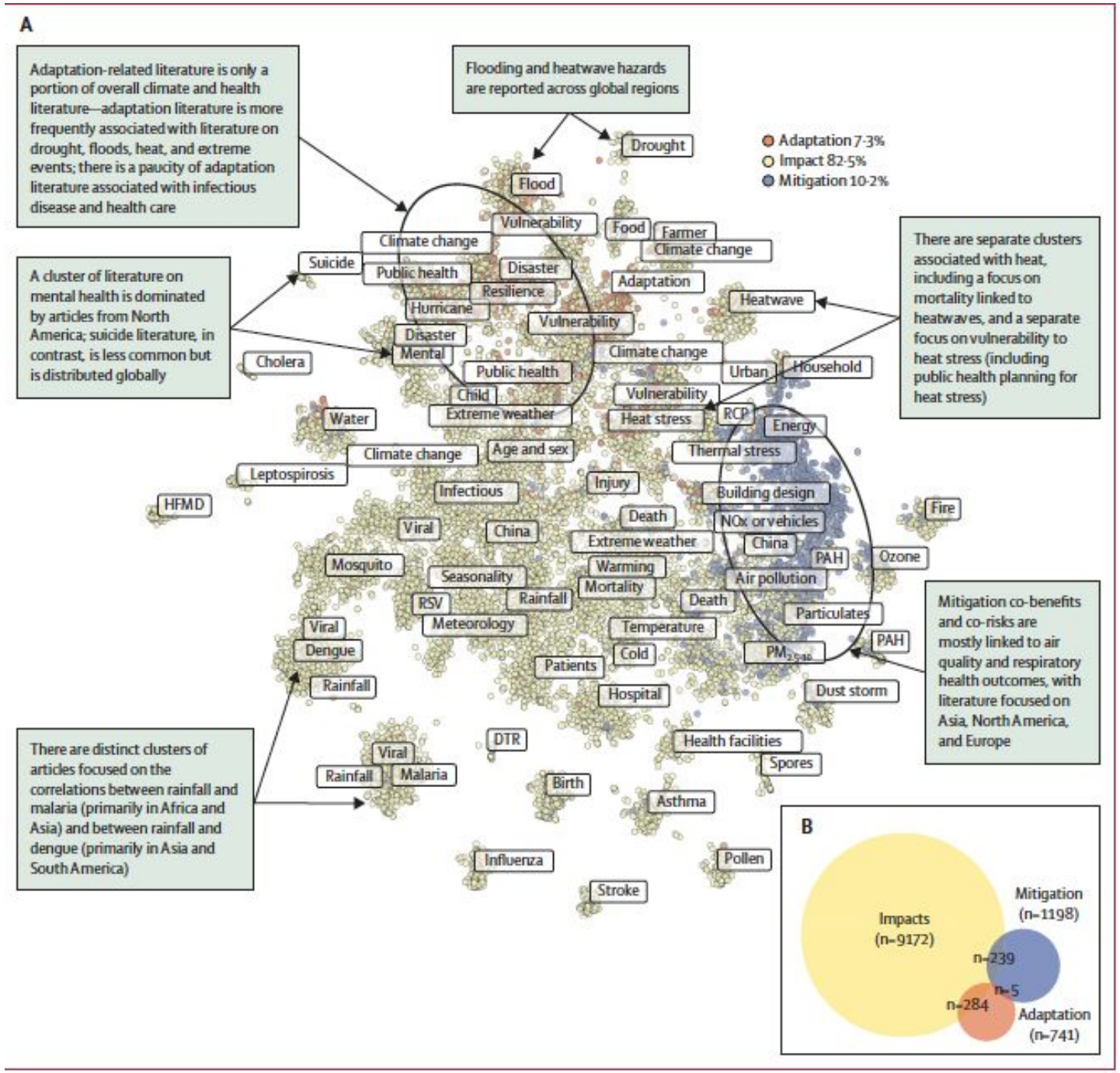

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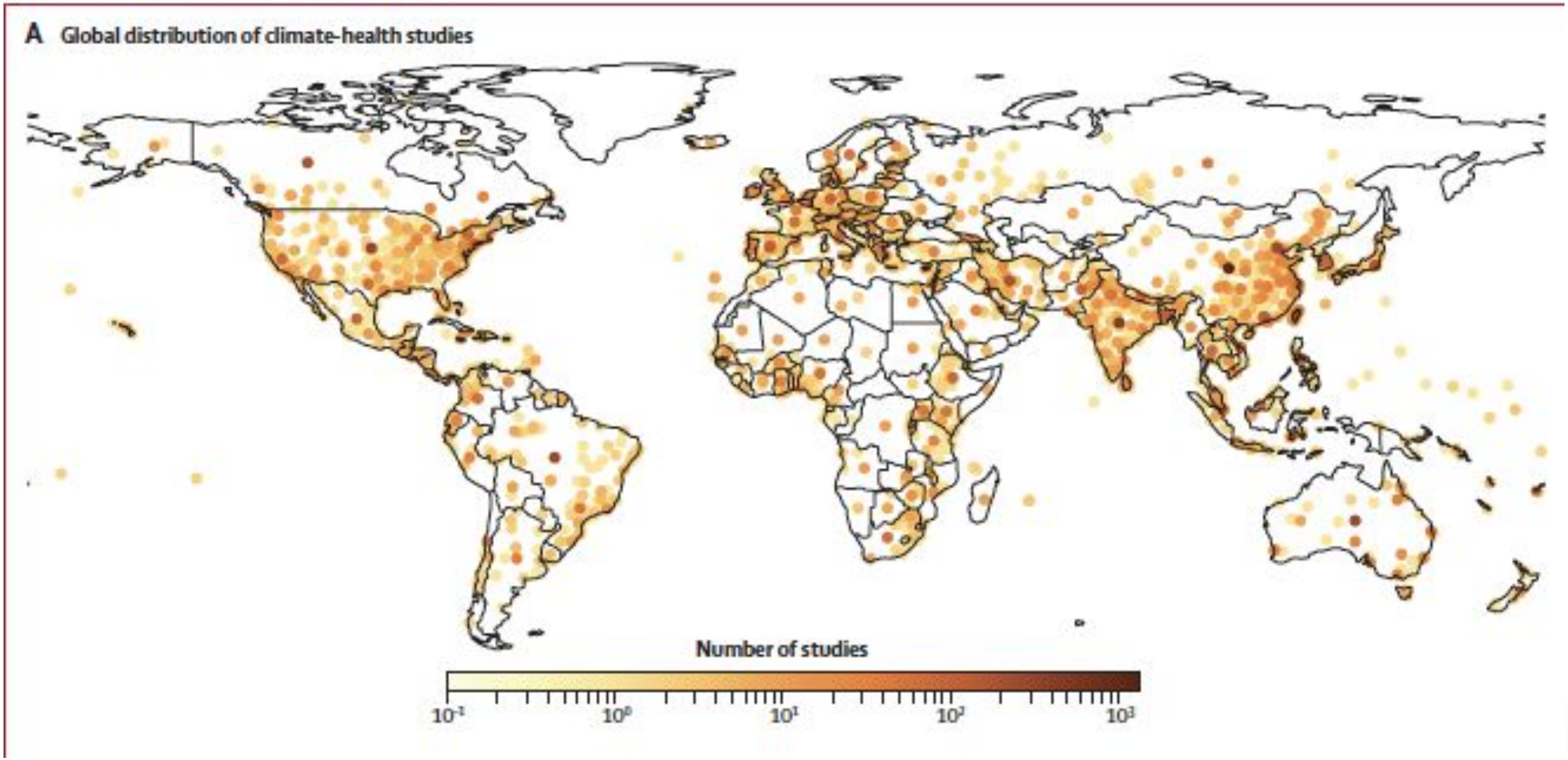

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B Most frequent topics by region and category

	Africa	Asia	Europe	North America	Oceania	Latin America
CCVW Hazards	(Rainfall; general climate change; seasonality)	(Particulates; temperature; meteorological variables)	(Temperature; heatwaves; meteorological variables)	(Hurricanes; extreme weather; particulates)	(Heatwaves; temperature; general climate change)	(Rainfall; meteorology; general climate change)
Health risks and impacts	(Malaria; infectious disease; public health)	(Air pollution; dengue; mortality)	(Mortality; air pollution; heat stress)	(Public health; heat stress; visits to health-care facilities)	(Public health; heat stress; hospital admissions)	(Dengue; mosquito vector dynamics; transmission)
Mediating pathways	(Rural households; age and sex; social vulnerability)	(China; age and sex; urban areas)	(Urban areas; age and sex; social vulnerability)	(Social vulnerability; age and sex; urban areas)	(Social vulnerability; age and sex; urban areas)	(Urban areas; social vulnerability; age and sex)
Options and responses	(DRR; energy policy; GH pathways)	(Energy policy; GH pathways; adaptation)	(GH pathways; energy policy; adaptation)	(Energy policy; community resilience; GH pathways)	(Community resilience; adaptation; energy policy)	(GH pathways; community resilience; adaptation)

Figure 3: **Geographical distribution of included studies where location information was available (A) and most frequent topics by region and category (B)**
Legend in map shows total number of articles. For studies conducted at the national level, points appear in the geographic centre of the region or country. CCVW=climate change, climate variability, and weather. DRR=disaster risk reduction. GH=greenhouse.

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Important challenge and opportunity for SALURBAL

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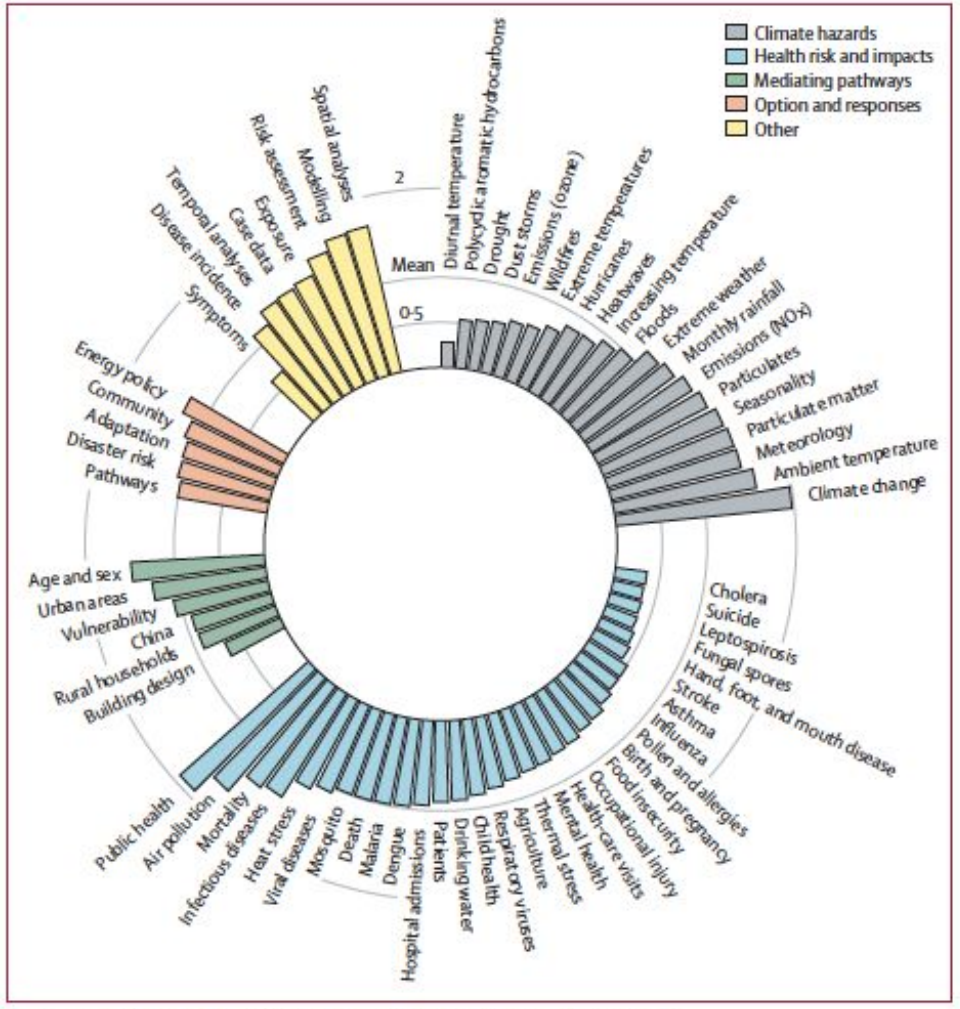

Figure 2: **Prevalence of topics within included articles, organised by meta-topic**
The axis is a normalised scale that reflects topic prevalence relative to the mean score (reference=1). For example, a bar with a value on the axis of 2 would mean that topic is twice as prevalent as the mean of all topics. A bar with a value of 0·5 would be a topic that occurs half as often as the mean. Topics are identified based on words used in article titles, keywords, and abstracts, and can thus reflect several meanings. Community, for example, includes articles related to community resilience, community perceptions, community-level studies, and community participation. Viewing the detailed words within this topic (appendix 1 p 7) shows that much of the literature driving this topic is associated with community and resilience as dominant co-occurring words.

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Closing comments

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In summary

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- Lots of progress already made in SALURBAL related to research on climate and health
  - Data—mostly temperatures, also floods
  - Analytical approaches

- Additional opportunities on the horizon
  - Enrich data
  - Broaden questions
  - Examine specific health and health equity impacts of mitigation and adaptation strategies
  - Capacity building and dissemination

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What is SALURBAL doing?

- Heat study led by Daniel –ancillary study to SALURBAL
- Seven-month extension (April 1-October 31 2023) focused on climate change
- Submitted proposal on climate and child health (Ana O, Maryia B. and Ana DR)
- Developing two proposals
  - SALURBAL II- Climate change and urban health in Latin America
  - Partnerships with WRI focusing on 3 Brazilian cities
  - More on these later in the meeting!

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