

Heat Adaptation among India's vulnerable populations

AMS100

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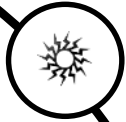
Wednesday, January 15, 2020



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Why Focus on India?



Hotter than places in same latitudes



Soon to be world's biggest country



Vulnerable population



Less is known from places with most impact



Study in extremes



India – A Vulnerable State

- Large tropical vulnerable population - 1.3 billion people
- Multidimensional vulnerability
 - age, socio-economic status, housing characteristics, vegetation & health access.
- Health expenditure (public) ~1% of its GDP – for > billion people
- Approx. half of all kids are undernourished and women anemic
- 58% live on < \$3.1 / day
- 53% of households don't have water available at home
- 42% don't have bathing facilities
- > half don't have an indoor toilet

Adaptation Strategies

Aim1: Build a general framework describing where and how deaths occur?

Aim2: Identify intervention points and ways to intervene?

Methods

- Semi-structured interviews
- 16 experts
- Included academics, climate-health researchers, medical doctors, community activists, urban planners, lawyers and policy advisors
- Thematic questions
- On perceived scope of problem, everyday lived experiences, exposure, recognition, in-house, & outside-care, subgroups and ideal solutions
- Dedoose version 8.2.14



Scope & scale

- Uniquely difficult situation
- “Mini tip of iceberg”
- Night warming > days



Vulnerability

- Laborers
 - Unorganized sector
- Rural & Urban Poor
 - Dire agricultural landscape
 - AC unaffordable
 - Crumbling urban infrastructure
- Women & Children
 - Metabolic rates
 - Clothing
- Others – elderly & sick

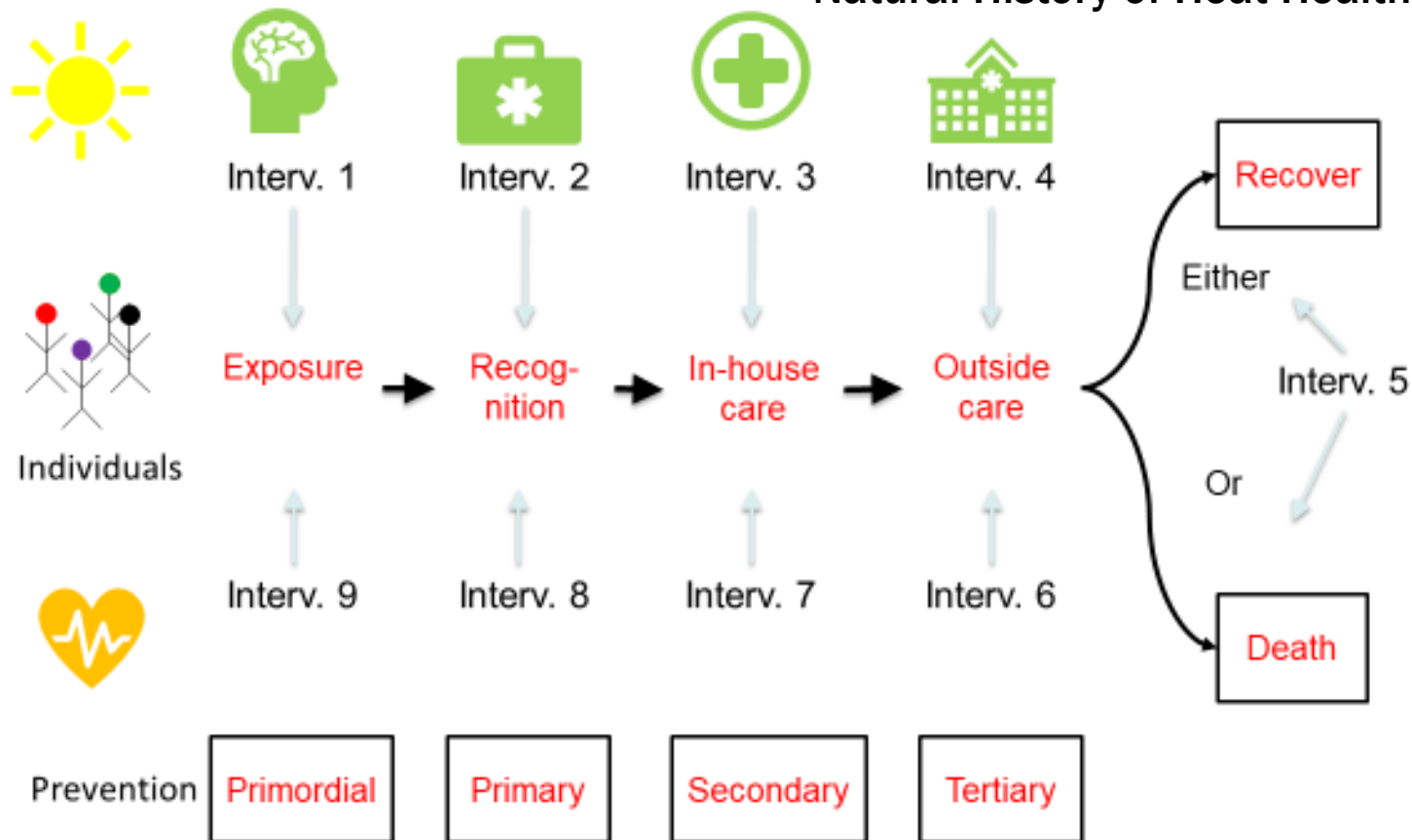


Consequences

- Discomfort
 - “Its about survival. Stay alive somehow”
 - “Its like being in an oven”
- Medical effects
 - Heat cramps, heat stroke, heat exhaustion & heat deaths
 - On pre-existing conditions
- 2nd & 3rd effects
 - Productivity
 - Infrastructural impacts
 - Chronic diseases



Natural History of Heat Health Conditions



Summary recommendations

	Stages in the natural history of disease progression			
Level	Exposure	Recognition	In-home care	Outside-home care
Individual	Renewable energy Solar panels Electric cars Reduce GHG emissions Awareness & motivation Structure designs	Hydration & ORS Shade - umbrella Cooling Fans & AC Dress Reduce Physical activity Routine medical checkups	Reducing further exposure Home treatment Traditional remedies Body resilience	Medical care Special instructions for vulnerable subgroups
Community	Reducing heat exposure Urban planning tree plantation cool roofs Community practices	Community water kiosks Tree planting ORS distribution Community involvement in planning Social capital Design suggestions	Caring for others during episodes of heat illness Awareness Weather information Behavior change communication Water conservation	Preventing further exposure Informing neighbors Arranging further treatment Involving community organizations
Federal	Climate mitigation Public transportation policy Environmental policies Green building ratings Water & electricity Deeper long-term issues Interdisciplinary plan	Building codes City codes Heat adaptation policy Water & electricity supply Nodal officers Volunteers & case workers Climate resilient occupations Labor laws Work safety codes	Cataloging traditional heat coping mechanisms ORS distribution campaign Sensitive population outreach Ethnographic studies	Emergency services Coordination Reporting heat deaths Prioritizing heat deaths Treatment guidelines Quick response teams Integrated solutions Short and long-term plans

Preventing heat illnesses - summary

- Individual
 - Education
 - Behavior change
 - Housing modifications
- Community
 - Participatory urban planning
 - Tree planting – cool roofs
 - Social capital
- Federal
 - Building & infrastructure policies
 - Heat & labor policies
 - Technological solutions



Responding to heat illnesses - summary

- Individual
 - Food & Liquids –home TT
 - Staying cool – AC, fan, medical care
- Community
 - ORS, water conservation
- Federal
 - Public awareness & outreach
 - Research



Issues

- Often adaptation suggestions seem to go against climate mitigation. E.g.: AC
- To find win-win is a *massive & complex challenge*
- **Subgroups** needs special focused measures. E.g.: preexisting medical conditions, specially-abled, migrants, outdoor workers, homeless and others



Issues

- Availability of **cause of death data** is urgently required to better characterize heat related morbidity and mortality
- **Bottom-up ethnographic research** is needed to document traditional adaptation measures used in the region for centuries, and also to balance centrally planned top down technological solutions.



Policy Implications

- To save lives we will require a **combination of strategies** – at individual, household, community and federal levels through various stages of disease progression from exposure, recognition to in-home and outside house care. These strategies will likely include a *mix of both traditional and modern methods*.
- Of all the three levels of implementation, **community level actions seem to be the best** compromise where these actions avoid weaknesses at the individual and federal levels.
- Communities know better about their own needs and are a good representation of the inherent diversity in such a large country as India.
- Clarification - we are using community in a generic sense – it could range from a city to a neighborhood or even just a city block. It's easier to look at the community as a system and understand its constituents.

Acknowledgements

- **Committee**
 - Gery Ryan (Chair)
 - Raffaele Vardavas
 - Jaime Madrigano
- **Outside reader**
 - Shubhyu Saha, CDC
- **CAPP & Pardee RAND Dissertation Awards**
- **Horowitz Foundation Dissertation Award**

Questions?!

Heatwaves:

“Silent and invisible killer of silenced and invisible people.” ~ Eric Klinenberg



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