The experiences of MEDEA an INEQ-CITIES projects in creating City Atlas of Inequalities in Mortality

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Outline

- Social inequalities in health in cities
  - MEDEA project
    - Objectives
    - Methodology
    - Working groups
    - Atlas
  - INEQ-Cities project
    - Objectives
    - Methodology
    - Atlas
    - Spanish dissemination

Social inequalities in health in cities

- In 2010, more than half of the world's population lived in cities (50.6%) and this percentage will increase to 70% by 2050.
- In Europe, these percentages are higher, three quarters of the population were city-dwellers

Social inequalities in health in cities: characteristics of urban areas

- They have high population density and diversity.
- Cities are provided with a rich array of human resources such as community organizations or unions that can influence population health.
- Cities have services for the population such as health, education or social services, usually more accessible than for the rural population.
- Urban areas are related with other political levels such as metropolitan areas, regions or countries.
- Socioeconomic inequalities in health tend to be larger in urban areas with disadvantaged and poor populations being concentrated in marginalized neighbourhoods.

Determinants of health inequalities in urban areas

MEDEA - General objectives

Medea I:
- To know the patterns of distribution of mortality in small areas of a selection of the great cities of Spain in 1996-2003.
- To study socioeconomic inequalities in mortality (overall and by cause) in selected cities of the Spain in 1996-2003.
- To study the relationship between environmental factors and (general and by cause) mortality in large cities of Spain.

Medea II:
Metodology

- There are 2 coordinated projects of more than 10 groups.
- DESIGN: Ecological study of Spanish cities
- UNITS OF ANALYSIS: Census tracts
- SOURCES OF INFORMATION:
  - Mortality registers
  - Socioeconomic variables from the census
- DATA ANALYSIS: Bayesian models (Besag, York and Mollié). It implies 2 sources of variation:
  - Spatial structure: shares information with neighbouring areas.
  - Spatial heterogeneity: Independency of areas.

Population by census tract in cities

<table>
<thead>
<tr>
<th>City</th>
<th>Population</th>
<th>Census tract</th>
<th>P25</th>
<th>P50</th>
<th>P75</th>
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<tbody>
<tr>
<td>Alicante</td>
<td>284580</td>
<td>1491</td>
<td>746.0</td>
<td>923.0</td>
<td>1165.0</td>
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<td>Bilbao</td>
<td>343 379</td>
<td>2566</td>
<td>805.0</td>
<td>1138.5</td>
<td>1493.9</td>
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<td>147 667</td>
<td>95</td>
<td>1092.0</td>
<td>1457.0</td>
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<td>1621.3</td>
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<tr>
<td>Melilla</td>
<td>524 414</td>
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Working groups

1. Group of socioeconomic indicators
2. Group of methods of analysis.
3. Group of environmental indicators.

Group of socioeconomic indicators

Construction of an index of socioeconomic deprivation:
- Manual workers
- Unemployment among individuals aged ≥16 years old.
- Temporary workers
- Low educational level, 16-29 years old.
- Low educational level ≥16 years old.

Group of methods of analysis

- Spatial epidemiology
- Methods to smooth SMR
- Ecological studies
- Methods used in MEDEA

Specific protocol with all the details to collect and analyse data

- First step: To geocode the information through the address.
- Causes of death studied
- How to prepare the mortality database: they were aggregated data
- How to prepare population database
- Cartography to use (census tract change each year in Spain)
Example of mortality database

<table>
<thead>
<tr>
<th>year</th>
<th>id</th>
<th>group</th>
<th>sex</th>
<th>age</th>
<th>sSMR</th>
<th>probability</th>
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</table>

Atlas of mortality in cities of Spain

Objetives


2. To show socioeconomic indicators in 2001 by census tracts in the same cities

Decisions to make

- What to represent:
  - Causes of death
  - Type of indicators: sSMR, probability that the sSMR is higher than 100

- What colours to use

- The cut points to use: septiles for each city, 5 fixed cut points to present all cities

- Apart of maps, which information to present
  - Distribution of sSMR
General objectives INEQ-cities project

- To study socioeconomic inequalities in mortality in census tracts of 14 European cities at the beginning of the 21st century, and
- To identify the social and health policies undertaken in these cities.

Participants (N=15)

<table>
<thead>
<tr>
<th>PARTICIPANTS</th>
<th>COUNTRIES</th>
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<tr>
<td>Agència de Salut Pública de Barcelona (ASPB)</td>
<td>España</td>
</tr>
<tr>
<td>Institut National de la Santé et de la Recherche Médicale (INSERM)</td>
<td>Francia</td>
</tr>
<tr>
<td>epidemiologie Vrije Universiteit Brussel (VUB)</td>
<td>Bélgica</td>
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<tr>
<td>Kullback-Leibler Institutet (KI)</td>
<td>Suecia</td>
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<td>University College London (UCL)</td>
<td>Reino Unido</td>
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<td>Helsinki University (HU)</td>
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<td>Universitat de Girona (UDG)</td>
<td>España</td>
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<tr>
<td>Agenzia Sanitaria Locale (ASL)</td>
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<tr>
<td>Agencia de Formación, Investigación y Estados Sanitarios de la Comunidad de Madrid (ASIE)</td>
<td>España</td>
</tr>
<tr>
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<td>Universidade de Coimbra (FUC)</td>
<td>Portugal</td>
</tr>
</tbody>
</table>

Methodology

- Cross-sectional design.
- Areas of study: small areas (if possible, census tract).
- Indicators at small area level: Mortality data and socioeconomic deprivation.
- Methodology of analysis of inequalities in mortality: Besag, York and Mollié (BYM) models (Bayesian).

Results

Borrell et al. SJPH, 2014

INEQ-CITIES project web page: http://www.ucl.ac.uk/ineqcities/

INEQ-CITIES ATLAS web page: http://www.ucl.ac.uk/ineqcities/
Dissemination of INEQ-CITIES in Spain: Beyond the academic target.

Objective

- To transfer aspects learned during the project to Spanish stakeholders (policymakers, officers, social organizations) involved in local/health policy process

Main activity

- 20 Spanish (10 Catalunya; 10 rest of Spain) seminars for officers and local policymakers (municipal health and other departments, health & non-health professionals)

Outline of the seminars

(5 hours / 10-20 pax / Intersectorial background)

- Contents:
  - Main findings/conclusions of the Ineq-cities project
  - A general introduction to local health inequities and social determinants of health
  - Programs and interventions evidence-based
  - Planning an intervention
  - Resources to tackle inequities

- It was a practical approach
Other sociopolitical impact and activities

- To conduct seminars with “social stakeholders”:
  - 2 main trade unions.
  - Occupy/ “indignados /15M”/ health movements.
  - Municipal associations (Catalan/Spanish federation).
- Brief meetings: with main political parties: Left wing parties committed to pass the resolution ("moción") to their municipality.
- Resolution: to be passed through city halls, local councils (via political parties):
  - Expressing general commitment on urban health inequities and supporting strategies and interventions to monitor and tackle them.

Materials & Internet and social networks

- Booklet (solid facts style, 30 pages) summarizing main findings of the project and evidence on best local practices to reduce health inequities.
- Two articles in electronic journals.
- Twitter account @Ineqcities_esp

Thank you
Gràcies

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