Socioeconomic differences in colorectal cancer screening in Barcelona, Spain.

A comparison of different socioeconomic variables

Andrea Burón, Javier Louro, Marta Roman, Borja Casañ, Oleguer Parés-Badell, Laia Palència, Jaume Grau, Francesc Macià, Antoni Castells, Xavier Castells

Hospital del Mar, Barcelona; REDISSEC; UD MPiSP H.Mar-UPF-ASPB; Agencia de Salud Pública de Barcelona; Hospital Clínic, Barcelona
Background and research questions
The Colorectal Cancer Screening Programme of Barcelona

Men & Women
50-69 y

FIT
OC-SENSOR
(20µg/g)
Pharmacies

www.prevenciacolonbcn.org
The Colorectal Cancer Screening Programme of Barcelona

December 2009

AIS Esquerra
AIS Litoral Mar

Approx 200,000
Currently 4th round

www.prevenciocolonbcn.org
The Colorectal Cancer Screening Programme of Barcelona

Since September 2015
All Barcelona covered
Aprox 400,000

www.prevenciocolonbcn.org
Socioeconomic differences in CRC screening uptake

Uptake in CRC screening programmes has been inversely related to socioeconomic level in many countries, eg. US, England, Scotland, Australia or Denmark.

In Spain, inequalities concentrate in the **most disadvantaged** group and in the **least deprived group**, with an **upward trend** in uptake between the least and the second most disadvantaged quintile.

**Socioeconomic differences in CRC screening uptake**

Uptake (%) in two CRC screening programmes by socioeconomic level

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Both Spanish studies used the **MEDEA index** for measuring socioeconomic level.

**Deprivation index by census tract in cities**

Includes 5 socioeconomic indicators *(Census 2001)*

• **Related to work:**
  1. Unemployment (%)  
  2. Manual workers (%)  
  3. Eventual workers (%)

• **Related to education:**
  4. Insufficient education overall (%)  
  5. Insufficient education in young people (%)

**Range:** -1.92 (least deprived) to 4.34 (most deprived)

**Barcelona:** 1,491 census tracts (total pop 91-7,003)
Could the *Spanish pattern of association* between uptake and socioeconomic level be related to the specific index used?

Would this pattern of association remain when using different socioeconomic indexes/variables?

Which “social” and “economic” aspects might be more important, i.e. account for a larger share of the differences observed?
Methods
Comparing different Socioeconomic indexes in Barcelona

<table>
<thead>
<tr>
<th>MEDEA</th>
<th>ASPB</th>
<th>RCA-Catsalut</th>
<th>Immigration %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>2013</td>
<td>2014</td>
<td>2014</td>
</tr>
<tr>
<td><strong>Studies:</strong> insufficient</td>
<td><strong>Studies (&lt;Primary school)</strong></td>
<td><strong>Pharmacy Copayment</strong></td>
<td>Share of non-Spanish nationals</td>
</tr>
<tr>
<td><strong>Work related:</strong> temporary, manual, unemployed</td>
<td><strong>Properties</strong> (housing price, # cars and % luxury cars)</td>
<td><strong>Work related:</strong> ratio “exempt (unemployed, disabled)” and “highest incomes”</td>
<td></td>
</tr>
<tr>
<td><strong>Census tract</strong></td>
<td><strong>Basic health care area</strong></td>
<td><strong>Basic health care area</strong></td>
<td><strong>Basic health care area</strong></td>
</tr>
</tbody>
</table>
Comparing different Socioeconomic indexes in Barcelona

- **MEDEA 2001**
- **ASPB 2013**
- **RCA-Catsalut 2014**
- **Immigration % 2014**
Comparing different Socioeconomic indexes in Barcelona

- MEDEA 2001
- ASPB 2013
- RCA-Catsalut 2014
- Immigration % 2014

- Eligible population of the 1st round of the Barcelona colorectal cancer screening Programme: 183,187 men and women 50 to 69 invited to participate between Dec 2009 and Dec 2011 (2010-2011)
- 33 Basic health care areas (total 63)
- People without socioeconomic data were excluded (10,225, 5.6%) → 172,962 people
- All socioeconomic variables into Quintiles
- Descriptive analyses, correlation, linear models adjusted by sex and age (prevalence ratios)
Results
1. **High correlation** between all 3 socioeconomic indexes, smaller between the indexes and % immigration

<table>
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<th>RCA-Catsalut</th>
<th>Immigration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MEDEA</strong></td>
<td>0.780</td>
<td>0.882</td>
<td>0.676</td>
</tr>
<tr>
<td><strong>ASPB</strong></td>
<td>-</td>
<td>0.938</td>
<td>0.686</td>
</tr>
<tr>
<td><strong>RCA-Catsalut</strong></td>
<td>-</td>
<td>-</td>
<td>0.730</td>
</tr>
</tbody>
</table>

Pearson's correlation coefficient
2. Very similar patterns of association between uptake and different socioeconomic indexes and immigration
3. Patterns of association by immigration vary in each of the socioeconomic quintiles
4. Prevalence ratios of uptake adjusted by age and sex: higher uptake in quintiles 2, 3 and 4, lower in 5.
Comparing different Socioeconomic indexes in Barcelona

5. **Prevalence ratios of uptake adjusted by age, sex and immigration**: increase in prevalence ratio, specially in quintile 5 (most deprived).

- **Q5 has a PR > 1** → uptake adjusted by immigration is higher in the most than in the least deprived.
Comparing different Socioeconomic indexes in Barcelona

Adjusted by sex and age

Adjusted by sex, age and immigration
Conclusions
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2. In the most and intermediate socioeconomic deprived groups, uptake decreases with increasing immigration share in the neighbourhood.
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1. The pattern of association between uptake and MEDEA index remains when using 2 other different socioeconomic indexes.

2. In the most and intermediate socioeconomic deprived groups, uptake decreases with increasing immigration share in the neighbourhood.

3. Adjustment by immigration significantly modifies the association, especially in the most deprived areas: uptake increases with deprivation.
In summary...

- The association between uptake and socioeconomic level in Barcelona (and other areas of Spain?) is different from the one found in other countries.

- Immigration might partially explain lower uptake rates (in most deprived areas) and must be taken into account.
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aburon@hospitaldelmar.cat