Effectiveness of the Safe Routes to School

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Barcelona, 17 May 2023
Active Travel Academy & Insititut Infància
SRTS in Barcelona since early 2000
The program promotes road safety education and active travel to schools through:
- an educational program conducted within the school and the community,
- and changes in the environment around the school
Background

- Many cities have promoted Safe Routes to School (SRTS) programs to make it easier for children to walk or cycle to school safely.

- Most studies have found that implementation of these programs increases active travel to school and decreases road traffic injuries, although there is controversy because of methodological limitations.
Objective

To evaluate the effectiveness of the SRTS program carried out in Barcelona between 2006 and 2016 in reducing the number of road traffic collisions and injuries in the school environment.
Methods

Design:
A pre-post quasi-experimental evaluation design, with a matched comparison group, including 64 intervention schools.

Inclusion and exclusion criteria:
• Traffic collisions with casualties occurring in the study area (buffer with a 200-m radius around the schools) during school times.
• Collisions occurring during Christmas and Easter holiday periods were excluded.

Outcomes included:
Collisions, People injured, within a radius of about 200 meters around schools during school hours, (2002-2019)

Sources of information:
Local police register, and contextual variables.

Analysis:
Generalized linear mixed model with Poisson distribution.
Intervention and comparison schools

Intervention schools (SRTS program implemented) and comparison schools, with their study area (200m radius area), Barcelona 2002-2019
Intervention and data timeline

- **SRTS program**: 1 gen
  - 1st Camí Segur Camí Amic 2006

- **Police road safety data**: 1 gen
  - Data included since 2002

- **Plan Safe Route to School Barcelona**: 1 gen
  - 2000

- **Police road safety data**: 1 des
  - Last Camí Segur Camí Amic 2016

- **Police road safety data**: 1 des
  - Data included until 2019

- **Police road safety data**: 1 des
  - 2019
### TABLE 1— Injury Traffic Collisions and People Injured in Areas Surrounding Schools With an SRTS Program (200-Meter Buffer) and in Areas Surrounding Comparison Schools, by Intervention Period: Barcelona, 2002–2019

<table>
<thead>
<tr>
<th></th>
<th>Intervention Schools (n=64)</th>
<th>Comparison Group Schools (n=63)</th>
<th>Per School <em>P</em>&lt;sup&gt;a&lt;/sup&gt; (Intervention/Comparison)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Schools Total</td>
<td>All Schools Annual Mean (95% CI)</td>
<td>Per School Annual Mean (95% CI)</td>
</tr>
<tr>
<td>No. of road traffic collisions with injuries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>2594</td>
<td>272.2 (180.3, 364.1)</td>
<td>0–28</td>
</tr>
<tr>
<td>Postintervention</td>
<td>2264</td>
<td>228.4 (115.9, 335.9)</td>
<td>0–28</td>
</tr>
<tr>
<td>No. of collisions involving any injured person aged 0–16 y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>240</td>
<td>21.8 (13.2, 30.5)</td>
<td>0–4</td>
</tr>
<tr>
<td>Postintervention</td>
<td>120</td>
<td>12 (6.6, 17.4)</td>
<td>0–4</td>
</tr>
<tr>
<td>No. of collisions involving any injured pedestrians aged 0–16 y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>135</td>
<td>12.3 (6.8, 17.7)</td>
<td>0–3</td>
</tr>
<tr>
<td>Postintervention</td>
<td>66</td>
<td>6.6 (2.8, 10.4)</td>
<td>0–3</td>
</tr>
<tr>
<td>No. of people injured</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>3478</td>
<td>316.2 (207.2, 425.2)</td>
<td>0–34</td>
</tr>
<tr>
<td>Postintervention</td>
<td>2715</td>
<td>271.5 (141.7, 401.3)</td>
<td>0–33</td>
</tr>
<tr>
<td>No. of injured persons aged 0–16 y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>251</td>
<td>22.8 (13.6, 32.1)</td>
<td>0–4</td>
</tr>
<tr>
<td>Postintervention</td>
<td>131</td>
<td>13.1 (7.1, 19.1)</td>
<td>0–4</td>
</tr>
<tr>
<td>No. of injured pedestrians aged 0–16 y</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Preintervention</td>
<td>136</td>
<td>12.4 (6.8, 17.9)</td>
<td>0–3</td>
</tr>
<tr>
<td>Postintervention</td>
<td>70</td>
<td>7 (3.0, 11.0)</td>
<td>0–3</td>
</tr>
</tbody>
</table>

*Note. SRTS = Safe Routes to School.*

*aSignificance of the nonparametric Wilcoxon rank-sum test (Mann-Whitney).
* p< 0.001 Significance of the interaction between period and type of school (intervention, comparison), allows to assess whether the differences between intervention and comparison schools can be attributed to the intervention. I shows whether the difference pre-post in the intervention group is significantly different from the difference pre-post in the comparison group.
Annually avoided road traffic injuries

It is estimated that the intervention of safe route to school has prevented:

- 16 collisions with injured children and young people between 0-16 years old
- 12 pedestrians injured from 0 to 16 years old

If the intervention had been extended to all schools in the city, the annual number of avoided collisions and injuries would have been:

- 97 collisions with injured children and young people between 0-16 years old
- 75 pedestrians injured from 0 to 16 years old
Conclusions

- Road traffic Injuries were significantly reduced in the intervention schools, but not in the comparison schools, with a larger reduction in the number of injured pedestrians, especially school-age pedestrians.

- The SRTS program significantly improved road safety among children and adolescents in an urban setting.

- The decrease observed in the number of collisions and injured people involving children and young people aged 0-16 and minor pedestrians can be attributed to the intervention of school roads.