Suggested Reference


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What Influences the Association between Previous and Future Crashes among Cyclists?

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Background

The phenomenon of ‘accident proneness’ was first reported in 1919\(^1\) and proposes that injuries tend to cluster within persons. It has been a subject of much debate but a recent meta-analysis reported that the observed number of individuals with repetitive injuries was higher than would be expected by chance.\(^2\) Some authors, however, argued that previous analyses did not account sufficiently for the spread of underlying risks between individuals or groups of individuals.\(^3\)

Aims

To investigate the association between experience of a previous crash and incidence of future crashes among cyclists who participated in the Taupō Bicycle Study.

Methods

Taupō Bicycle Study

- Is a prospective cohort study involving 2590 adult cyclists.
- Recruited from the Lake Taupō Cycle Challenge, New Zealand’s biggest mass cycling event.
- Collected baseline information through a web-based questionnaire in 2006.
- Collected bicycle crash outcome data through linkage to mortality records, hospital discharges, insurance claims and police reports.

Propensity Score Analysis

- Is an alternative method to adjust for confounding in observational studies.
- Used to estimate the participants’ crash involvement propensity based on their demographic, cycling and residential characteristics.

Cox Regression

- Cox regression modelling for repeated events was performed using a counting process approach. Analyses were stratified by quintiles of the propensity score.

Results

Propensity Score Adjusted Hazard Ratio Estimates (95% CI)

<table>
<thead>
<tr>
<th>Quintiles of propensity score</th>
<th>Having previous crash experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Any crash</td>
</tr>
<tr>
<td>Total</td>
<td>1.24 (1.10, 1.39)</td>
</tr>
<tr>
<td>Quintile 1</td>
<td>1.12 (0.77, 1.63)</td>
</tr>
<tr>
<td>Quintile 2</td>
<td>1.09 (0.79, 1.51)</td>
</tr>
<tr>
<td>Quintile 3</td>
<td>0.98 (0.72, 1.32)</td>
</tr>
<tr>
<td>Quintile 4</td>
<td>1.45 (1.13, 1.86)</td>
</tr>
<tr>
<td>Quintile 5</td>
<td>1.36 (1.10, 1.67)</td>
</tr>
</tbody>
</table>

The reference group comprise participants without previous crash experience.

Conclusions

Previous crash experience increased the risk of future crash involvement in high-risk cyclists only. The specific characteristics that explain the ‘high risk’ status of some cyclists warrant further investigation.

A stronger association for previous crashes attended medically indicates that health service providers could play an important role in preventing bicycle crash injuries.

References


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For details, please refer to:


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