Rider Blood Alcohol in Thailand Motorcycle Crashes

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Two subpopulations:
Alcohol-involved vs. non-alcohol crashes

• Non-alcohol crashes in Thailand were very different from non-alcohol crashes in Los Angeles.

• But alcohol-involved crashes were very similar in both study areas.
Accident time for drinkers and non-drinkers in Thailand, 3-hour rolling average
Accident time for drinkers and non-drinkers in Hurt study, 3-hour rolling average
Most common accident configurations among non-drinkers

<table>
<thead>
<tr>
<th>Rank</th>
<th>Configuration</th>
<th>Los Angeles (n = 773)</th>
<th>Thailand (n = 683)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td>23.0</td>
<td>11.1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>14.0</td>
<td>9.2</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>9.2</td>
<td>8.3</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>8.7</td>
<td>8.3</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>8.2</td>
<td>7.5</td>
</tr>
</tbody>
</table>

OV

Motorcycle
### Most common accident configurations among drinking riders

<table>
<thead>
<tr>
<th>Rank</th>
<th>Los Angeles (n = 102)</th>
<th>Thailand (n = 393)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Configuration</td>
<td>Percent</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>38.8</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>13.6</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>10.7</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>4.9</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>3.9</td>
</tr>
</tbody>
</table>
### Loss of control mode, drinkers vs. non-drinkers in Thailand & Hurt study

<table>
<thead>
<tr>
<th>Loss of control mode</th>
<th>No alcohol</th>
<th>Alcohol involved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Los Angeles (n=773)</td>
<td>Thailand (n=683)</td>
</tr>
<tr>
<td>Capsize</td>
<td>4.7 %</td>
<td>3.4 %</td>
</tr>
<tr>
<td>Slide-out</td>
<td>22.8 %</td>
<td>6.0 %</td>
</tr>
<tr>
<td>High-side</td>
<td>1.9 %</td>
<td>0.6 %</td>
</tr>
<tr>
<td>Ran off road</td>
<td>6.3 %</td>
<td>2.2 %</td>
</tr>
<tr>
<td>Other</td>
<td>1.8 %</td>
<td>0.7 %</td>
</tr>
<tr>
<td>No Loss</td>
<td>62.5 %</td>
<td>87.0 %</td>
</tr>
</tbody>
</table>
## Major traffic violations

<table>
<thead>
<tr>
<th>Major traffic violations</th>
<th>No alcohol</th>
<th>Alcohol involved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Los Angeles</td>
<td>Thailand</td>
</tr>
<tr>
<td>Running red light</td>
<td>12 %</td>
<td>25 %</td>
</tr>
<tr>
<td>Riding in opposing lane</td>
<td>3.6 %</td>
<td>6.7 %</td>
</tr>
</tbody>
</table>
Rider or OV driver error in multiple vehicle crashes

- Thailand - Drinking riders: Rider error 75.6%, OV driver error 24.4%
- Thailand - Non-drinkers: Rider error 49.4%, OV driver error 50.6%
- Los Angeles - Drinking riders: Rider error 72.2%, OV driver error 27.8%
- Los Angeles - Non-drinkers: Rider error 39.7%, OV driver error 60.3%
Cumulative percent distribution of rider Blood Alcohol Content (BAC)

- All riders (n=372)
- All riders with BAC>0 (n=229)
Rider inattention as a function of rider BAC

Rider BAC, mg/dl

Percent

0 10 20 30 40 50 60 70 80 90 100

0 1 - 49 50-79 80-99 100-149 150-199 200-249 250+

Rider BAC, mg/dl
Single vehicle, ran-off-road and loss-of-control crashes, by BAC level

BAC level, mg/dl

Percent

- Single vehicle
- Lost control
- Ran off road
Object struck by motorcycle as a function of rider BAC

Percent of group

Rider BAC, mg/dl

Other vehicle in traffic
Parked vehicle
Roadway, roadside object
Animal, pedestrian, other
Rider error as primary or sole cause factor by BAC, all crashes
Primary cause factor by BAC in multiple vehicle crashes

![Diagram showing the percentage of primary cause factors by BAC for rider and OV driver errors. The x-axis represents Rider BAC in mg/dl, and the y-axis represents the percent of errors. The diagram includes two lines: one for Rider error (n=292) and one for OV driver error (n=259).]
Minimum BAC level that differs significantly from non-drinkers.
Motorcycle precrash speed by rider BAC, 25th, 50th & 75th percentile

![Graph showing precrash speed by BAC for 25th, 50th, and 75th percentiles. The x-axis represents Rider BAC in mg/dl, and the y-axis represents precrash speed in km/hr. The graph includes lines for 25th percentile speed (dashed), Median speed (gray), and 75th percentile speed (solid)].
Motorcycle crash speed by BAC group, 25th, 50th and 75th percentiles
Medical treatment by BAC level

- Minor treatment
- Hospitalized
- Fatal

Rider BAC group:
- 0
- 1-49
- 50-79
- 80-99
- 100-149
- 150-199
- 200-249
- 250+

Percent

0 10 20 30 40 50 60 70
As BAC increases:

1. Rider inattention goes up regularly
2. Loss of control crashes go up regularly
3. Single-vehicle & run-off-road crashes increase greatly, but hold steady at BAC > .05%
4. Rider error as primary or sole cause doubles above BAC > .05%
5. Speeds remain steady
6. Minor crashes decrease, and serious and fatal crashes increase