**Appendix**

**Text A1: Types of motorcycles**

Scooter:

Scooters are characterized by small wheels and a comfortable driving position that allows riders to place their feet on a platform. They usually have small engines and are used in the city for a short distance trip.

Basic:

Basic motorcycles are characterized by their simple design conception with few styling frills. They have an upright riding position which is similar to that of a roadster and a cruiser. They are simple to ride and to maintain, more adaptable for daily trips and cheaper than other types.

Roadster:

Roadsters are characterized by the absence of fairing and have a design between basic and sport bike. They have a simple design with certain esthetic and showy frills, and with a sportive engine. The majority of roadsters have an engine displacement between 600 and 1200 cm3.

Cruiser:

Cruisers are characterized by no fairing coverage and a specific riding position with the feet forward to the front and high and wide-set handlebars.

Tourer/grand tourer:

Touring or grand touring motorcycles are designed for comfortable, long distance travels. They are equipped with high-displacement engines, luggage and wind protection.

Sports bike:

Sports bikes are derived from the road-racing motorcycles. They are equipped with high-displacement engines and full fairing. They are lighter and smaller than touring motorcycles, with a forward-leaning riding position. So they are capable of high speed, acceleration, cornering.

Dual-purpose:

Dual-purpose motorcycles can be used both off-road and on-road. They are similar to off-road motorcycles, with some added equipments designed to adapt to the road.

Off-road:

As the name suggests, they are designed for off-road use. They are characterized by no fairing, long travel suspension and knobby tires designed to provide more grip on surfaces not paved. They are light weight and typically equipped with small-displacement engines.

Table A1: Distribution of cases and controls according to potential risk factors for motorcycle loss-of-control crash involvement, crude OR and 95% CI (observed frequency and weighted column percentage)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Risk factors  |  | Case | Control | Crude OR and 95% C.I. | Wald Chi²P-value |
|  | Nobs=444 | %w | Nobs=470 | %w |
| Gender | Female | 16 | 7.1 | 28 | 7.4 | Ref | 0.9 |
| Male | 428 | 92.9 | 442 | 92.6 | 1.0 [0.5 ; 2.3] |
| Age (years) | 16-17 | 10 | 5.4 | 7 | 2.2 | 2.4 [0.8 ; 7.1] | 0.6 |
| 18-24 | 81 | 16.1 | 83 | 17.0 | 0.9 [0.5 ; 1.6] |
| 25-34 | 134 | 30.4 | 129 | 29.3 | Ref |
| 35-44 | 104 | 23.5 | 120 | 24.0 | 0.9 [0.6 ; 1.6] |
| 45-54 | 80 | 16.8 | 89 | 19.6 | 0.8 [0.5 ; 1.5] |
| >=55 | 35 | 7.8 | 42 | 7.9 | 1.0 [0.4 ; 2.1] |
| Blood alcohol concentration | Negative (<0.5 g/l) | 258 | 72.0 | 382 | 84.4 | Ref | <.0001 |
| Positive (≥0.5g/l) | 128 | 14.3 | 7 | 0.1 | 150 [63.2 ; 356] |
| Unknown | 58 | 13.8 | 81 | 15.5 | 1.0 [0.6 ; 1.8] |
| Validity of driving license  | No valid license | 49 | 6.9 | 18 | 3.6 | 2.1 [0.9 ; 5.0] | 0.25 |
| Valid, held for <2 years | 150 | 31.7 | 138 | 27.6 | 1.3 [0.8 ; 2.0] |
| Valid, held for ≥2 years | 189 | 53.4 | 250 | 58.7 | Ref |
| Unknown | 56 | 7.9 | 64 | 10.1 | 0.9 [0.4 ; 1.7] |
| Trip purpose | Home-work/home-school | 56 | 18.8 | 120 | 26.7 | Ref | 0.20 |
| Business trip | 10 | 4.7 | 27 | 7.4 | 0.9 [0.3 ; 2.4] |
| Leisure or recreational riding | 145 | 26.5 | 92 | 19.9 | 1.9 [1.1 ; 3.4] |
| Other (vacation, shopping/errands, visiting family/friends, personal, etc.) | 106 | 16.3 | 94 | 14.2 | 1.6 [0.9 ; 3.1] |
| Unknown | 127 | 33.7 | 137 | 31.8 | 1.5 [0.9 ; 2.6] |
| Engine displacement | ≤125 cm3 | 91 | 31.6 | 133 | 34.8 | Ref | 0.8 |
| >125 cm3 | 350 | 66.8 | 328 | 63.6 | 1.2 [0.8 ; 1.8] |
| Unknown | 3 | 1.6 | 9 | 1.7 | 1.0 [0.2 ; 5.3] |
| Motorcycle type | Scooter | 57 | 20.2 | 130 | 34.4 | 0.8 [0.4 ; 1.4] | 0.002 |
| Basic/tourer | 82 | 16.9 | 95 | 21.8 | Ref |
| Cruiser | 20 | 4.4 | 16 | 2.7 | 2.1 [0.7 ; 6.4] |
| Roadster | 133 | 24.6 | 107 | 18.9 | 1.7 [0.9 ; 3.1] |
| Sports bike  | 86 | 14.1 | 53 | 6.3 | 2.9 [1.4 ; 6.1] |
| Dual-purpose | 38 | 10.8 | 34 | 7.8 | 1.8 [0.8 ; 3.9] |
| Off-road | 15 | 3.5 | 2 | 0.6 | 7.0 [1.3 ; 38.6] |
| Unknown | 13 | 5.6 | 33 | 7.5 | 1.0 [0.4 ;2.5] |
| Day of week | Weekdays | 236 | 56.7 | 366 | 81.1 | Ref | <.0001 |
| Weekends | 208 | 43.3 | 104 | 18.9 | 3.3 [2.1 ; 5.0] |
| Lighting | Daylight | 303 | 69.3 | 354 | 75.2 | Ref | 0.008 |
| Sunrise or sunset | 21 | 4.4 | 31 | 6.2 | 0.8 [0.3 ; 1.9] |
| Night with light on  | 61 | 11.7 | 53 | 13.5 | 0.9 [0.5 ; 1.7] |
| Night with light off | 59 | 14.5 | 32 | 5.0 | 3.1 [1.6 ; 6.2] |
| Weather | Normal weather (clear, cloudy) | 412 | 87.9 | 444 | 93.2 | Ref | 0.06 |
| Bad weather (rain, snow, etc.) | 32 | 12.1 | 26 | 6.8 | 1.9 [1.0 ; 3.7] |
| Area | Non-urban | 265 | 44.8 | 168 | 20.2 | 3.2 [2.1 ; 4.9] | <.0001 |
| Urban  | 179 | 55.2 | 302 | 79.8 | Ref |
| Type of road | Motorway | 33 | 7.8 | 13 | 3.8 | 2.4 [1.0 ; 5.8] | 0.13 |
| Trunk road | 34 | 9.2 | 34 | 6.9 | 1.6 [0.8 ; 3.4] |
| County road | 243 | 36.0 | 220 | 32.5 | 1.3 [0.9 ; 2.0] |
| Street | 134 | 47.0 | 203 | 56.7 | Ref |
| Alignment | Straight line | 150 | 43.3 | 369 | 79.3 | Ref | <.0001 |
| Curve | 294 | 56.7 | 101 | 20.7 | 5.0 [3.3 ; 7.7] |
| Road adhesion | Normal adhesion | 343 | 64.4 | 402 | 82.6 | Ref | <.0001 |
| Predictable poor adhesion  | 54 | 17.2 | 44 | 11.3 | 2.0 [1.1 ; 3.5] |
| Unpredictable poor adhesion | 33 | 13.5 | 3 | 1.0 | 18.2 [5.2 ; 63.1] |
| Unknown | 14 | 4.9 | 21 | 5.2 | 1.2 [0.5 ; 3.0] |
| Posted speed limit (km/h) | Less than 50 | 189 | 54.2 | 293 | 77.8 |  | <.0001 |
| 60-70  | 40 | 6.6 | 32 | 2.9 | 3.2 [1.3 ; 7.9] |
| 80-90  | 189 | 32.5 | 134 | 15.7 | 3.0 [1.9 ; 4.7] |
| 110-130  | 26 | 6.8 | 11 | 3.5 | 2.8 [1.1 ; 6.8] |
| Traveling speed | Nobs known speed | Mean speed (km/h) | Nobs known speed | Mean speed (km/h) |  | T-testP-value |
| 189 | 68.4  | 207 | 53.3 |  | 0.0004 |

*\** *Nobs: number of observations; Nobs known speed: number of observations with non-missing speed*