Supplementary material

Supplementary Table 1. Demographic findings of the study population by seat belt use.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Total | | Seat belt use | | Non-use | |  |
| N | % | N | % | N | % | *p*-value |
| Total | | 82,262 |  | 61,142 | 74.3 | 21,120 | 25.7 |  |
| Age, Median (IQR), year | | 40 (29–54) | | 41 (31–54) | | 36 (25–52) | | <0.001 |
| Sex, Male | | 42,053 | 51.1 | 32,026 | 52.4 | 10,027 | 47.5 | <0.001 |
| Day of injury, weekend | | 29,264 | 35.6 | 21,444 | 35.1 | 7820 | 37.0 | <0.001 |
| Time of injury | | | | | | | | |
|  | 06:00–18:00 | 50,431 | 61.3 | 38,697 | 63.3 | 11,734 | 55.6 | <0.001 |
| Alcohol consumption | | 4325 | 5.3 | 2049 | 3.4 | 2276 | 10.8 | <0.001 |
| EMS use | | 32,579 | 39.6 | 22,994 | 37.6 | 9585 | 45.4 | <0.001 |
| Mental status at the ED | | | | | | | | |
|  | Alert | 79,074 | 96.1 | 59,263 | 96.9 | 19,811 | 93.8 | <0.001 |
| Verbal | 873 | 1.1 | 455 | 0.7 | 418 | 2.0 |
| Painful stimuli | 453 | 0.6 | 206 | 0.3 | 247 | 1.2 |
| Unresponsive | 454 | 0.6 | 179 | 0.3 | 275 | 1.3 |
| Unknown | 1408 | 1.7 | 1039 | 1.7 | 369 | 1.7 |
| Driving status | | | | | | | | |
|  | Driver | 49,759 | 60.5 | 42,919 | 70.2 | 6840 | 32.4 | <0.001 |
| Passenger | 32,503 | 39.5 | 18,223 | 29.8 | 14,280 | 67.6 |
| Type of road | | | | | | | | |
|  | Expressway | 14,143 | 17.2 | 11,219 | 18.3 | 2924 | 13.8 | <0.001 |
| Nationalway | 64,073 | 77.9 | 47,494 | 77.7 | 16,579 | 78.5 |
| Alleyway | 1381 | 1.7 | 886 | 1.4 | 495 | 2.3 |
| Others | 2665 | 3.2 | 1543 | 2.5 | 1122 | 5.3 |
| Collision direction | | | | | | | | |
|  | Frontal | 10,712 | 13.0 | 7363 | 12.0 | 3349 | 15.9 | <0.001 |
| Side lateral | 7431 | 9.0 | 5184 | 8.5 | 2247 | 10.6 |
| Rear | 13,121 | 16.0 | 9865 | 16.1 | 3256 | 15.4 |
| Roll over | 1262 | 1.5 | 786 | 1.3 | 476 | 2.3 |
| Complex | 2658 | 3.2 | 2052 | 3.4 | 606 | 2.9 |
| Others | 47,078 | 57.2 | 35,892 | 58.7 | 11,186 | 53.0 |
| Anatomical classification of injury | | | | | | | | |
|  | Head & face | 33,676 | 40.9 | 22,867 | 37.4 | 10,809 | 51.2 | <0.001 |
| Neck | 29,767 | 36.2 | 23,631 | 38.6 | 6136 | 29.1 | <0.001 |
| Chest | 14,729 | 17.9 | 11,331 | 18.5 | 3398 | 16.1 | <0.001 |
| Abdomen | 19,887 | 24.2 | 15,669 | 25.6 | 4218 | 20.0 | <0.001 |
| Upper extremity | 14,720 | 17.9 | 10,891 | 17.8 | 3829 | 18.1 | 0.300 |
| Lower extremity | 13,110 | 15.9 | 9092 | 14.9 | 4018 | 19.0 | <0.001 |
| EMR-ISS, Median (IQR) | | 9 (4–14) | | 9 (4–13) | | 9 (4–17) | |  |
| Clinical outcomes | | | | | | | | |
|  | In-hospital mortality | 566 | 0.7 | 245 | 0.4 | 321 | 1.5 | <0.001 |
| Intracranial injury | 1902 | 2.3 | 1065 | 1.7 | 837 | 4.0 | <0.001 |

IQR: interquartile range; EMS: emergency medical services; ED: emergency department; EMR-ISS: excess mortality ratio-adjusted injury severity score.

Supplementary Table 2. Demographic findings between the study population and the missing group.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | Total | | Target population | | Missing group | |  |
| N | % | N | % | N | % | *p* value |
| Total | | 171,265 |  | 82,262 | 48.0 | 89,003 | 52.0 |  |
| Age, Median (IQR), year | | 40 (29–54) | | 40 (29–54) | | 40 (29–54) | | <0.001 |
| Sex, Male | | 89,642 | 52.3 | 42,053 | 51.1 | 47,589 | 53.5 | <0.001 |
| Day of injury, weekend | | 62,511 | 36.5 | 29,264 | 35.6 | 33,247 | 37.4 | <0.001 |
| Time of injury | | | | | | | | |
|  | 06:00–18:00 | 102,774 | 60.0 | 50,431 | 61.3 | 52,343 | 58.8 | <0.001 |
| Alcohol consumption | | 8683 | 5.1 | 4325 | 5.3 | 4358 | 4.9 | <0.001 |
| EMS use | | 66,548 | 38.9 | 32,579 | 39.6 | 33,969 | 38.2 | <0.001 |
| Mental status at the ED | | | | | | | | |
|  | Alert | 147,160 | 85.9 | 79,074 | 96.1 | 68,086 | 76.5 | <0.001 |
| Verbal | 1844 | 1.1 | 873 | 1.1 | 971 | 1.1 |
| Painful stimuli | 1119 | 0.7 | 453 | 0.6 | 666 | 0.7 |
| Unresponsive | 1271 | 0.7 | 454 | 0.6 | 817 | 0.9 |
| Unknown | 19,871 | 11.6 | 1408 | 1.7 | 18,463 | 20.7 |
| Driving status | | | | | | | | |
|  | Driver | 99,999 | 58.4 | 49,759 | 60.5 | 50,240 | 56.4 | <0.001 |
| Passenger | 71,266 | 41.6 | 32,503 | 39.5 | 38,763 | 43.6 |
| Type of road | | | | | | | | |
|  | Expressway | 18,566 | 10.8 | 14,143 | 17.2 | 4423 | 5.0 | <0.001 |
| Nationalway | 106,705 | 62.3 | 64,073 | 77.9 | 42,632 | 47.9 |
| Alleyway | 2109 | 1.2 | 1381 | 1.7 | 728 | 0.8 |
| Others | 43,885 | 25.6 | 2665 | 3.2 | 41,220 | 46.3 |
| Collision direction | | | | | | | | |
|  | Frontal | 16,232 | 9.5 | 10,712 | 13.0 | 5520 | 6.2 | <0.001 |
| Side lateral | 9940 | 5.8 | 7431 | 9.0 | 2509 | 2.8 |
| Rear | 16,121 | 9.4 | 13,121 | 16.0 | 3000 | 3.4 |
| Roll over | 2397 | 1.4 | 1262 | 1.5 | 1135 | 1.3 |
| Complex | 3397 | 2.0 | 2658 | 3.2 | 739 | 0.8 |
| Others | 123,178 | 71.9 | 47,078 | 57.2 | 76,100 | 85.5 |
| Anatomical classification of injury | | | | | | | | |
|  | Head & face | 66,673 | 38.9 | 33,676 | 40.9 | 32,997 | 37.1 | <0.001 |
| Neck | 53,479 | 31.2 | 29,767 | 36.2 | 23,712 | 26.6 | <0.001 |
| Chest | 27,461 | 16.0 | 14,729 | 17.9 | 12,732 | 14.3 | <0.001 |
| Abdomen | 35,888 | 21.0 | 19,887 | 24.2 | 16,001 | 18.0 | <0.001 |
| Upper extremity | 26,255 | 15.3 | 14,720 | 17.9 | 11,535 | 13.0 | <0.001 |
| Lower extremity | 23,643 | 13.8 | 13,110 | 15.9 | 10,533 | 11.8 | <0.001 |
| EMR-ISS, Median (IQR) | | 9 (4–13) | | 9 (4–14) | | 9 (4–13) | | <0.001 |
| Clinical outcomes | | | | | | | | |
|  | In-hospital mortality | 4575 | 2.7 | 1902 | 2.3 | 2673 | 3.0 | <0.001 |
| Intracranial injury | 1715 | 1.0 | 566 | 0.7 | 1149 | 1.3 | <0.001 |

IQR: interquartile range; EMS: emergency medical services; ED: emergency department; EMR-ISS: excess mortality ratio-adjusted injury severity score.