Motorcycle Helmet Use in 2019—Overall Results

Use of DOT-compliant motorcycle helmets was 70.8 percent in 2019, not statistically different at the 0.05 level from 71.0 percent in 2018. This result is from the National Occupant Protection Use Survey (NOPUS), the only survey that provides nationwide probability-based observed data on motorcycle helmet use in the United States. NHTSA’s National Center for Statistics and Analysis conducts the NOPUS every year. Throughout this Research Note the term helmet use refers to the use of DOT-compliant motorcycle helmets unless otherwise stated.

Figure 1 shows the motorcycle helmet use trend since 2010. Figure 2 shows the percentages of motorcyclists using DOT-compliant helmets, noncompliant helmets, and no helmet in 2018 and 2019. Figure 3 shows helmet use in States that require all motorcyclists to be helmeted compared to States that require some or no motorcyclists to be helmeted.

The 2019 survey found only one significant year-to-year change: Use of noncompliant helmets in States that do not require all motorcyclists to be helmeted increased significantly from 3.5 percent in 2018 to 14.8 percent in 2019 (Table 2).

1 The data presented in this research note is reflective of helmet use during an average daylight moment.
### Table 1
Use of Helmets Compliant With Federal Safety Regulations by Major Motorcyclist Characteristics

<table>
<thead>
<tr>
<th>Motorcyclist Group</th>
<th>2018 Helmet Use¹</th>
<th>2019 Helmet Use¹</th>
<th>2018–2019 Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(95% CI)</td>
<td>(95% CI)</td>
<td></td>
</tr>
<tr>
<td>All Motorcyclists</td>
<td>71.0% (61.6, 78.9)</td>
<td>70.8% (62.7, 77.8)</td>
<td>-0.2 (-8.0, 7.6)</td>
</tr>
<tr>
<td>Riders</td>
<td>71.4% (61.7, 79.4)</td>
<td>75.0% (65.1, 82.9)</td>
<td>3.7 (-4.3, 11.7)</td>
</tr>
<tr>
<td>Passengers</td>
<td>68.8% (50.8, 82.5)</td>
<td>48.0% (30.0, 66.6)</td>
<td>-20.8 (-49.0, 7.3)</td>
</tr>
<tr>
<td>Motorcyclists in²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>States Where Use Is Required for All Motorcyclists</td>
<td>83.0% (71.8, 90.3)</td>
<td>89.2% (82.0, 93.7)</td>
<td>6.2 (-3.9, 16.4)</td>
</tr>
<tr>
<td>Other States</td>
<td>56.9% (45.2, 67.8)</td>
<td>56.5% (44.8, 67.5)</td>
<td>-0.4 (-9.6, 8.7)</td>
</tr>
<tr>
<td>Motorcyclists on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressways</td>
<td>74.1% (58.9, 85.0)</td>
<td>73.7% (55.4, 84.6)</td>
<td>-0.3 (-16.9, 16.3)</td>
</tr>
<tr>
<td>Surface Streets</td>
<td>70.1% (59.8, 78.7)</td>
<td>69.3% (62.8, 75.1)</td>
<td>-0.8 (-8.3, 6.6)</td>
</tr>
<tr>
<td>Motorcyclists Traveling in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast Traffic</td>
<td>76.3% (65.3, 84.6)</td>
<td>72.8% (60.1, 82.7)</td>
<td>-3.5 (-15.5, 8.6)</td>
</tr>
<tr>
<td>Medium-Speed Traffic</td>
<td>67.0% (55.0, 77.2)</td>
<td>75.7% (64.6, 84.1)</td>
<td>8.6 (-1.4, 18.7)</td>
</tr>
<tr>
<td>Slow Traffic</td>
<td>69.1% (54.0, 81.0)</td>
<td>64.1% (53.3, 72.0)</td>
<td>-5.0 (-19.1, 9.0)</td>
</tr>
<tr>
<td>Motorcyclists Traveling in</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Traffic</td>
<td>73.3% (61.7, 82.4)</td>
<td>72.1% (60.4, 81.4)</td>
<td>-1.2 (-12.0, 9.6)</td>
</tr>
<tr>
<td>Moderately Dense Traffic</td>
<td>72.5% (59.6, 82.5)</td>
<td>71.4% (54.4, 84.0)</td>
<td>-1.1 (-15.9, 13.7)</td>
</tr>
<tr>
<td>Light Traffic</td>
<td>64.1% (54.1, 73.0)</td>
<td>66.3% (58.0, 73.6)</td>
<td>2.2 (-8.2, 12.6)</td>
</tr>
<tr>
<td>Motorcyclists in ²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Clear Weather Conditions</td>
<td>73.5% (40.0, 92.0)</td>
<td>71.3% (61.4, 79.5)</td>
<td>-2.2 (-29.3, 24.9)</td>
</tr>
<tr>
<td>Clear Weather Conditions</td>
<td>70.8% (61.7, 78.5)</td>
<td>70.8% (62.1, 78.1)</td>
<td>-0.1 (-7.7, 7.6)</td>
</tr>
<tr>
<td>Motorcycle Riders When</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>They Are the Sole Rider</td>
<td>70.9% (61.0, 79.1)</td>
<td>74.0% (63.2, 82.5)</td>
<td>3.1 (-5.1, 11.4)</td>
</tr>
<tr>
<td>They Have Passengers</td>
<td>73.8% (56.2, 86.1)</td>
<td>79.7% (65.3, 89.1)</td>
<td>5.8 (-13.9, 25.6)</td>
</tr>
<tr>
<td>Motorcyclists in the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>71.1% (52.7, 84.4)</td>
<td>74.1% (56.5, 86.3)</td>
<td>3.0 (-6.3, 12.3)</td>
</tr>
<tr>
<td>Midwest</td>
<td>57.7% (42.2, 71.7)</td>
<td>43.4% (30.9, 56.8)</td>
<td>-14.2 (-29.7, 1.2)</td>
</tr>
<tr>
<td>South</td>
<td>74.5% (54.0, 87.9)</td>
<td>74.6% (60.3, 85.0)</td>
<td>0.1 (-18.8, 19.0)</td>
</tr>
<tr>
<td>West</td>
<td>84.2% (68.5, 92.9)</td>
<td>83.7% (74.6, 90.0)</td>
<td>-0.5 (-12.5, 11.5)</td>
</tr>
<tr>
<td>Motorcyclists in the</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Areas</td>
<td>69.1% (58.1, 78.3)</td>
<td>67.8% (57.3, 78.3)</td>
<td>-1.2 (-11.5, 9.0)</td>
</tr>
<tr>
<td>Rural Areas</td>
<td>73.5% (62.6, 82.1)</td>
<td>76.5% (65.9, 84.5)</td>
<td>3.0 (-6.6, 12.7)</td>
</tr>
<tr>
<td>Motorcyclists Traveling During</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekdays</td>
<td>71.0% (60.8, 79.4)</td>
<td>69.4% (62.4, 75.6)</td>
<td>-1.6 (-10.0, 6.9)</td>
</tr>
<tr>
<td>Weekday Rush Hours</td>
<td>71.3% (60.1, 80.3)</td>
<td>73.1% (64.5, 80.2)</td>
<td>1.8 (-9.2, 12.8)</td>
</tr>
<tr>
<td>Weekday Non-Rush Hours</td>
<td>70.8% (57.7, 81.2)</td>
<td>66.8% (57.9, 74.6)</td>
<td>-4.0 (-16.6, 8.6)</td>
</tr>
<tr>
<td>Weekends</td>
<td>71.0% (57.1, 81.8)</td>
<td>72.6% (57.2, 84.0)</td>
<td>1.6 (-12.7, 15.9)</td>
</tr>
<tr>
<td>Motorcycle Riders Who</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are Riding Alone</td>
<td>70.9% (61.0, 79.1)</td>
<td>74.0% (63.2, 82.5)</td>
<td>3.1 (-5.1, 11.4)</td>
</tr>
<tr>
<td>Have Passengers Using DOT-Compliant Helmets</td>
<td>83.8% (62.0, 94.3)</td>
<td>87.8% (76.8, 94.0)</td>
<td>4.0 (-15.2, 23.3)</td>
</tr>
<tr>
<td>Have Passengers Using Noncompliant Helmets</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Have Unhelmeted Passengers</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Passengers on Motorcycles on Which</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riders Are Using DOT-Compliant Helmets</td>
<td>78.1% (54.1, 91.6)</td>
<td>52.9% (31.2, 73.6)</td>
<td>-25.2 (-58.0, 7.5)</td>
</tr>
<tr>
<td>Riders Are Using Noncompliant Helmets</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Riders Are Unhelmeted</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

1 Use of helmets meeting the safety requirements of Federal Motor Vehicle Safety Standard 218, observed between 7 a.m. and 6 p.m. among motorcycle riders and passengers.

2 The Wilson Confidence Interval has the form: \((\frac{2n_{eff}p + 1}{2} \pm t_{1–\alpha/2} \cdot \sqrt{\frac{2n_{eff}p \cdot (1 - p)}{2n_{eff} + 1}}}) / 2(\frac{n_{eff}}{DEFF} + t^2)\), where \(p\) is the estimated percentage of Helmet Use, \(n_{eff} = n / DEFF\) is the effective sample size (where \(n\) is the sample size and \(DEFF\) is the design effect), \(t \equiv t_{1–\alpha/2} (df)\) is a multiplier from the \(t\)-distribution with \(df\) degrees of freedom, and \(q = 1 - p\). For percentages, these endpoints are multiplied by 100.

3 The regular symmetric interval was used for the estimated change in percentage point, which is in the form: \(p \pm t_{1–\alpha/2} (df) \sqrt{v(p)}\), where \(p\) is the estimated change in percentage point, \(v(p)\) is its estimated variance, and \(t_{1–\alpha/2} (df)\) is a multiplier from the \(t\)-distribution with \(df\) degrees of freedom. The degrees of freedom used in 2019 is different from that used in 2018.

4 Use rates reflect the laws in effect at the time data was collected.

5 The “Change in Percentage Points” column was computed using unrounded estimates and may not equal the difference between the percentages displayed in the table which are rounded to the nearest tenth.

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, NCSA.
Table 2

Use of Noncompliant Helmets by Major Motorcyclist Characteristics

<table>
<thead>
<tr>
<th>Motorcyclist Group</th>
<th>2018 Helmet Use¹</th>
<th>2018 95% Confidence Interval²</th>
<th>2019 Helmet Use¹</th>
<th>2019 95% Confidence Interval²</th>
<th>Change, in Percentage Points⁶</th>
<th>95% Confidence Interval³</th>
<th>P-Value⁴</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Motorcyclists</td>
<td>9.0% (5.5, 14.4)</td>
<td>12.6% (7.9, 19.5)</td>
<td>3.5 (-4.7, 11.7)</td>
<td>0.39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riders</td>
<td>7.6% (4.7, 12.1)</td>
<td>7.6% (3.6, 15.3)</td>
<td>0.0 (-6.2, 6.2)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passengers</td>
<td>17.3% (7.0, 36.8)</td>
<td>39.2% (19.2, 63.6)</td>
<td>21.9 (-9.8, 53.7)</td>
<td>0.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists in²</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>States Where Use Is Required for All Motorcyclists</td>
<td>13.7% (7.9, 22.8)</td>
<td>9.7% (5.5, 16.5)</td>
<td>-4.0 (-12.7, 4.7)</td>
<td>0.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other States</td>
<td>3.5% (1.4, 8.4)</td>
<td>14.8% (7.9, 25.9)</td>
<td>11.2 (1.6, 20.9)</td>
<td>0.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists on</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressways</td>
<td>8.0% (3.2, 18.5)</td>
<td>13.3% (4.5, 33.3)</td>
<td>5.3 (-10.6, 21.3)</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Streets</td>
<td>9.3% (5.4, 15.8)</td>
<td>12.2% (7.7, 18.7)</td>
<td>2.8 (-5.2, 10.9)</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists Traveling in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fast Traffic</td>
<td>5.7% (2.6, 11.9)</td>
<td>12.0% (5.0, 25.3)</td>
<td>6.4 (-4.7, 17.5)</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium Speed Traffic</td>
<td>8.3% (4.3, 15.2)</td>
<td>5.6% (3.7, 8.5)</td>
<td>-2.7 (-8.1, 2.8)</td>
<td>0.33</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slow Traffic</td>
<td>14.9% (7.5, 27.5)</td>
<td>18.9% (13.2, 25.3)</td>
<td>4.0 (-7.7, 15.6)</td>
<td>0.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists Traveling in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy Traffic</td>
<td>9.6% (5.7, 15.5)</td>
<td>13.1% (6.6, 24.2)</td>
<td>3.5 (-6.9, 13.9)</td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderately Dense Traffic</td>
<td>5.9% (2.3, 14.3)</td>
<td>9.3% (4.3, 18.9)</td>
<td>3.4 (-7.1, 13.9)</td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light Traffic</td>
<td>11.8% (5.5, 23.7)</td>
<td>16.2% (10.0, 25.1)</td>
<td>4.4 (-7.4, 16.2)</td>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Clear Weather Conditions</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear Weather Conditions</td>
<td>8.8% (5.5, 14.0)</td>
<td>12.4% (7.7, 19.3)</td>
<td>3.6 (-4.5, 11.6)</td>
<td>0.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcycle Riders When</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>They Are the Sole Motorcyclists</td>
<td>6.7% (4.1, 10.7)</td>
<td>8.3% (3.7, 17.7)</td>
<td>1.6 (-5.7, 9.0)</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>They Have Passengers</td>
<td>12.2% (4.5, 28.8)</td>
<td>4.5% (19.1, 10.1)</td>
<td>-7.7 (-20.1, 4.7)</td>
<td>0.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists in the</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northeast</td>
<td>10.7% (3.6, 27.7)</td>
<td>19.4% (10.1, 34.0)</td>
<td>8.8 (-12.1, 29.6)</td>
<td>0.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midwest</td>
<td>7.9% (3.7, 16.0)</td>
<td>8.2% (3.5, 17.9)</td>
<td>0.3 (-8.6, 9.2)</td>
<td>0.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South</td>
<td>8.2% (3.1, 19.8)</td>
<td>6.3% (2.5, 15.2)</td>
<td>-1.9 (-11.5, 7.6)</td>
<td>0.68</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West</td>
<td>10.7% (4.9, 21.8)</td>
<td>11.2% (5.4, 21.6)</td>
<td>0.5 (-10.5, 11.4)</td>
<td>0.93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Areas</td>
<td>11.9% (6.7, 20.2)</td>
<td>15.9% (9.6, 25.3)</td>
<td>4.0 (-7.7, 15.7)</td>
<td>0.49</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Areas</td>
<td>5.3% (3.0, 9.4)</td>
<td>6.1% (3.0, 12.0)</td>
<td>0.8 (-4.8, 6.4)</td>
<td>0.78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcyclists Traveling During</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekdays</td>
<td>9.3% (5.3, 15.7)</td>
<td>14.5% (8.7, 23.3)</td>
<td>5.2 (-3.9, 14.4)</td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday Rush Hours</td>
<td>11.7% (5.9, 21.7)</td>
<td>9.7% (6.2, 14.9)</td>
<td>-2.0 (-10.6, 6.0)</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekday Non-Rush Hours</td>
<td>7.7% (4.2, 13.9)</td>
<td>17.9% (9.9, 30.2)</td>
<td>10.2 (-1.7, 22.1)</td>
<td>0.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weekends</td>
<td>8.7% (4.0, 17.9)</td>
<td>10.1% (3.7, 24.6)</td>
<td>1.4 (-11.3, 14.0)</td>
<td>0.83</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Motorcycle Riders Who</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are Riding Alone</td>
<td>6.7% (4.1, 10.7)</td>
<td>8.3% (3.7, 17.7)</td>
<td>1.6 (-5.7, 9.0)</td>
<td>0.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Passengers Using DOT-Compliant Helmets</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Passengers Using Noncompliant Helmets</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have Unhelmeted Passengers</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passengers on Motorcycles on Which</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riders Are Using DOT-Compliant Helmets</td>
<td>19.1% (6.8, 43.5)</td>
<td>44.3% (23.2, 67.6)</td>
<td>25.2 (-7.6, 57.9)</td>
<td>0.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riders Are Using Noncompliant Helmets</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riders Are Unhelmeted</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Use of helmets that do NOT meet the safety requirements of Federal Motor Vehicle Safety Standard 218, observed between 7 a.m. and 6 p.m. among motorcycle riders and passengers.
² The Wilson Confidence Interval has the form:  \( \hat{p} \pm t\frac{\hat{p}(1-\hat{p})}{\sqrt{\text{df}}} \), where \( \hat{p} \) is the estimated percentage of Helmet Use, \( n_{\text{eff}} = n / \text{DEFF} \) is the effective sample size (where \( n \) is the sample size and \( \text{DEFF} \) is the design effect), \( t = t_{1-\alpha / 2} (\text{df}) \), is a multiplier from the t-distribution with \( \text{df} \) degrees of freedom, and \( q = 1 - \hat{p} \). For percentages, these endpoints are multiplied by 100.
³ The regular symmetric interval was used for the estimated change in percentage point, which is in the form: \( p ± t_{1-\alpha / 2} (\text{df}) \sqrt{\hat{p}(1-\hat{p})/n} \), where \( \hat{p} \) is the estimated change in percentage point, \( \sqrt{\hat{p}(1-\hat{p})/n} \) is its estimated variance, and \( t_{1-\alpha / 2} (\text{df}) \) is a multiplier from the t-distribution with \( \text{df} \) degrees of freedom. The degrees of freedom used in 2019 is different from that used in 2018.
⁴ A p-value of 0.05 or less indicates that there is a statistically significant difference (at the alpha=0.05 level) between the 2018 and 2019 estimates for the group in question, indicated with boldface type.
⁵ Use rates reflect the laws in effect at the time data was collected.
⁶ The “Change in Percentage Points” column was computed using unrounded estimates and may not equal the difference between the percentages displayed in the table which are rounded to the nearest tenth.

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, NCSA.
Survey Methodology

NOPUS is the only survey that provides nationwide probability-based observed data on motorcycle helmet use in the United States. The survey observes helmet use as it actually occurs at randomly selected roadway sites to provide the best tracking of helmet use in this country.

The survey data is collected by sending observers to probabilistically sampled roadways to observe motorcyclists between 7 a.m. and 6 p.m. Observations are made either while standing at the roadside or, in the case of expressways, while riding in a vehicle in traffic. In order to capture the true behavior of motorcyclists, NOPUS observers do not stop motorcycles or interview motorcyclists. The 2019 NOPUS data was collected from June 2 to June 17, 2019, while the 2018 data was collected from June 4 to June 20, 2018.

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation procedures. Table 3 shows the sample sizes of the 2019 NOPUS Moving Traffic Survey which included a total of 828 motorcyclists riding on 707 motorcycles at the 1,877 data collection sites.

<table>
<thead>
<tr>
<th>Sites Observed*</th>
<th>1,882</th>
<th>1,877</th>
<th>-0.3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motorcycles Observed</td>
<td>659</td>
<td>707</td>
<td>7.3%</td>
</tr>
<tr>
<td>Motorcyclists Observed</td>
<td>786</td>
<td>828</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

*The number of sites observed reflects the number of sites in the sample frame minus those sites unavailable due to restricted access, traffic problems, or safety issues.

Because NOPUS selects the sites probabilistically, we can test the statistical significance of its results. Statistically significant changes in helmet use between 2018 and 2019 are identified in Table 2 by a p-value that is 0.05 or less in the table’s far-right column.

Data collection, estimation, and variance estimation for the NOPUS are conducted by Westat, Inc., under the direction of the NCSA under Federal contract number 693JJ918D000001.

Definitions

NHTSA established standards for motorcycle helmets to ensure a certain degree of protection in a crash in Federal Motor Vehicle Safety Standard 218 (Code of Federal Register, Title 49, Volume 5, Part 571, Section 218, October 2003). DOT-compliant helmets are helmets that meet this safety standard, while noncompliant helmets are helmets that do not.

DOT-compliant helmets are marked with an identifying sticker on the backs of the helmets. However, because of the prevalence of counterfeit stickers, NOPUS data collectors categorize DOT-compliant helmets as helmets that cover the motorcyclists’ ears, are at least 1 inch thick, have hefty chin straps, and do not have protrusions longer than two-tenths of an inch.

NHTSA defines helmet use as the use of DOT-compliant helmets.

At the time of the 2019 survey, 19 States and the District of Columbia required all motorcyclists to wear helmets. Table 4 lists States with motorcycle helmet laws in effect for all motorcyclists. Twenty-eight States required only a subset of riders or motorcycle passengers to use helmets (such as those under age 17, 18, or 21). Three States, Illinois, Iowa, and New Hampshire, had no motorcycle helmet requirement (Highway Loss Data Institute, 2019).

“Expressways” are defined as roadways with limited access, while “surface streets” comprise all other roadways. “Rush hour” is defined as 7 to 9:30 a.m. and 3:30 to 6 p.m. on weekdays.

During the observation period, a roadway is defined to have “fast traffic” if the average speed of passenger vehicles that pass the observer exceeds 50 mph, with “medium-speed traffic” defined as 31 to 50 mph, and “slow traffic” defined as 30 mph or slower.
During the observation period, a roadway is defined to have “heavy traffic” if the average number of vehicles on the roadway is greater than 5 per lane per mile, with “moderately dense traffic” defined as greater than 1 but less than or equal to 5 vehicles per lane per mile, and “light traffic” as less than or equal to 1 vehicle per lane per mile.

As of 2018, “Not Clear Weather Conditions” includes sites where light precipitation or light fog is present.

The survey uses the following definitions of geographic regions, defined by the States below:

Northeast: CT, MA, ME, NH, NJ, NY, PA, RI, VT
Midwest: IA, KS, IL, IN, MI, MN, MO, ND, NE, OH, SD, WI
South: AL, AR, DC, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, WV
West: AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY

Please note that NHTSA uses the following data-reporting guidelines for NOPUS publications:

An estimate whose numerator is based on fewer than five observations in the sample, and/or whose denominator is based on fewer than 30 observations in the sample is reported as “NA” in publications, including any related estimates.

More Information

For questions regarding the information presented in this report, contact the National Center for Statistics and Analysis at 800-934-8517 or by e-mail at ncsarequests@dot.gov. Additional data and information on the survey design and analysis procedures will be available in upcoming publications to be posted at https://crashstats.nhtsa.dot.gov.

Helmets are estimated to be 37-percent effective in preventing fatal injuries to motorcycle riders and 41-percent effective for motorcycle passengers (Deutermann, 2004; Deutermann, 2005).

NHTSA estimates that helmets saved the lives of 1,872 motorcyclists in 2017 (NCSA, 2019). For more information on the campaign by NHTSA and the States to raise helmet use, visit www.nhtsa.gov/road-safety/motorcycles.

The NOPUS also observes other types of restraints, such as seat belts and child restraints, and observes driver electronic device use. This publication is part of a series that presents overall results from the survey on these topics. Please see publications in the series, such as Seat Belt Use in 2019 – Overall Results, at https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/812875 for the latest data on these topics.

References


The suggested APA format citation for this report is:


This research note and other general information on highway traffic safety may be accessed at: www-nrd.nhtsa.dot.gov/CATS/index.aspx