

Traffic Safety Facts

Research Note

DOT HS 810 840

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Motorcycle Helmet Use in 2007 — Overall Results

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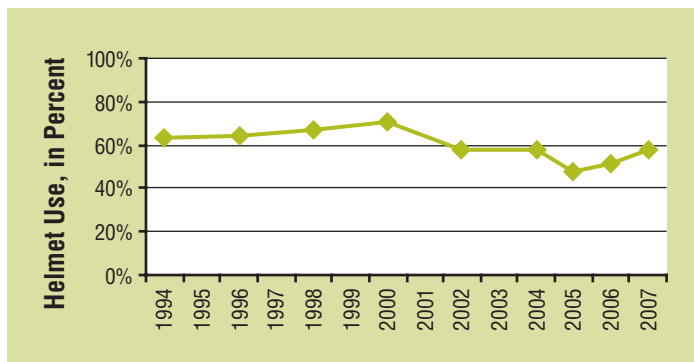
Use of DOT-compliant helmets rose 7 percentage points to 58 percent in 2007. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only nationwide probability-based observed data on helmet use in the United States. The NOPUS is conducted by the National Center for Statistics and Analysis of the National Highway Traffic Safety Administration.

The 2007 survey also found the following:

- DOT-compliant helmet use was up in many areas, with annual gains of 10 percentage points or more in the Northeast, the South, and suburban areas.

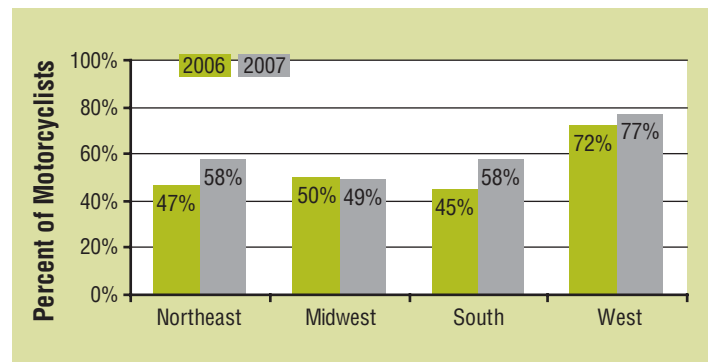
- However there are still spots where compliant helmet use remains very low, including the Midwest (49%), rural areas (55%), and use on the weekends (54%).
- Use of helmets not compliant with DOT safety standards stood at 16 percent in 2007, statistically unchanged from the 14 percent rate in 2006.

Motorcycle Helmet Use, 1994 - Present



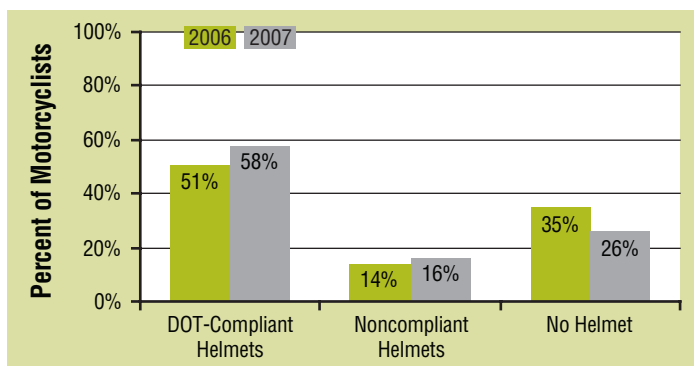
Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis

Motorcycle Helmet Use, by Geographic Region



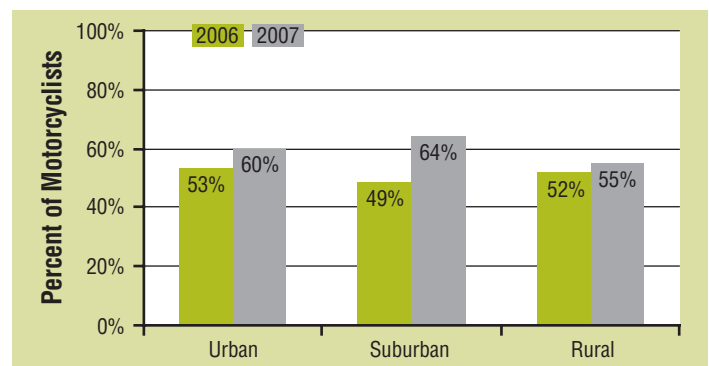
Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006, 2007

Motorcycle Helmet Use, by Type of Helmet



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006, 2007

Motorcycle Helmet Use, by Urbanization



Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis, 2006, 2007

Use of Helmets Compliant With Federal Safety Regulations, by Major Characteristics

Motorcyclist Group	2006		2007		2006-2007 Change	
	Helmet Use ¹	Confidence That Use Is High or Low in Group ²	Helmet Use ¹	Confidence That Use Is High or Low in Group ²	Change in Percentage Points	Confidence in a Change in Use ³
All Motorcyclists	51%		58%		7	86%
Operators	57%	100%	59%	69%	2	30%
Passengers	33%	100%	56%	69%	23	99%
Motorcyclists in States Where ⁴						
Use Is Required for All Motorcyclists	68%	100%	74%	100%	6	59%
Other States	37%	100%	42%	100%	5	60%
Motorcyclists on						
Expressways	63%	94%	63%	85%	0	11%
Surface Streets	50%	94%	57%	85%	7	77%
Motorcyclists Traveling in						
Fast Traffic	49%	61%	54%	91%	5	58%
Medium Speed Traffic	62%	97%	58%	51%	-4	32%
Slow Traffic	43%	96%	66%	95%	23	100%
Motorcyclists Traveling in						
Heavy Traffic	NA		NA		NA	
Moderately Dense Traffic	72%	94%	71%	79%	-1	4%
Light Traffic	50%	95%	58%	80%	8	87%
Motorcyclists in						
Light Precipitation	NA		52%	74%	NA	
Light Fog	76%	97%	NA		NA	
Clear Weather Conditions	50%	100%	58%	51%	8	89%
Motorcycle Operators When						
They Are the Sole Rider	65%	84%	75%	100%	10	89%
They Have a Passenger	57%	84%	63%	75%	6	43%
Motorcyclists in the						
Northeast	47%	71%	58%	51%	11	81%
Midwest	50%	53%	49%	94%	-1	9%
South	45%	84%	58%	51%	13	91%
West	72%	100%	77%	100%	5	60%
Motorcyclists in						
Urban Areas	53%	58%	60%	61%	7	57%
Suburban Areas	49%	62%	64%	97%	15	99%
Rural Areas	52%	58%	55%	95%	3	28%
Motorcyclists Traveling During						
Weekdays	49%	77%	62%	92%	13	95%
Weekday Rush Hours	42%	85%	68%	92%	26	100%
Weekday Non-rush Hours	52%	85%	59%	92%	7	56%
Weekends	55%	77%	54%	92%	-1	12%
Operators of Motorcycles Who						
Are Riding Alone	57%	50%	58%	75%	1	12%
Have a Passenger Using a DOT-Compliant Helmet	79%	97%	83%	100%	4	23%
Have a Passenger Using a Noncompliant Helmet	27%	95%	47%	86%	20	61%
Have an Unhelmeted Passenger	51%	78%	32%	100%	-19	75%
Passengers on Motorcycles on Which						
The Operator Is Using a DOT-Compliant Helmet	46%	62%	73%	100%	27	100%
The Operator Is Using a Noncompliant Helmet	7%	100%	36%	92%	29	96%
The Operator Is Unhelmeted	24%	100%	20%	100%	-4	19%

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 operators and passengers.

² The level of statistical confidence that use in the motorcyclist group (e.g. motorcyclists in urban areas) is higher or lower than use in the corresponding complementary motorcyclist group (e.g., motorcyclists in suburban and rural areas). Confidence levels that meet or exceed 90% are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100%" confidence are between 99.5% and 100.0%.

³ The degree of statistical confidence that the 2007 use rate is different from the 2006 rate.

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

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Use of Noncompliant Helmets, by Major Characteristics

Motorcyclist Group	2006		2007		2006-2007 Change	
	Helmet Use ¹	Confidence That Use Is High or Low in Group ²	Helmet Use ¹	Confidence That Use Is High or Low in Group ²	Change in Percentage Points	Confidence in a Change in Use ³
All Motorcyclists	14%		16%		2	38%
Operators	14%	61%	15%	64%	1	22%
Passengers	13%	61%	17%	64%	4	53%
Motorcyclists in States Where ⁴						
Use Is Required for All Motorcyclists	15%	64%	23%	100%	8	86%
Other States	13%	64%	8%	100%	-5	69%
Motorcyclists on						
Expressways	14%	55%	20%	87%	6	71%
Surface Streets	14%	55%	14%	87%	0	9%
Motorcyclists Traveling in						
Fast Traffic	10%	87%	18%	84%	8	98%
Medium Speed Traffic	18%	83%	13%	83%	-5	52%
Slow Traffic	13%	65%	14%	64%	1	27%
Motorcyclists Traveling in						
Heavy Traffic	29%	74%	NA		NA	
Moderately Dense Traffic	7%	93%	NA		NA	
Light Traffic	14%	83%	16%	100%	2	39%
Motorcyclists in						
Light Precipitation	14%	52%	18%	60%	4	20%
Light Fog	16%	55%	NA		NA	
Clear Weather Conditions	14%	56%	15%	64%	1	35%
Motorcycle Operators When						
They Are the Sole Rider	12%	61%	16%	61%	4	69%
They Have a Passenger	19%	61%	14%	61%	-5	54%
Motorcyclists in the						
Northeast	9%	92%	24%	95%	15	100%
Midwest	14%	50%	14%	73%	0	2%
South	19%	94%	16%	60%	-3	38%
West	6%	98%	10%	85%	4	52%
Motorcyclists in						
Urban Areas	17%	83%	17%	65%	0	3%
Suburban Areas	14%	59%	13%	84%	-1	15%
Rural Areas	13%	62%	17%	77%	4	61%
Motorcyclists Traveling During						
Weekdays	14%	54%	15%	70%	1	11%
Weekday Rush Hours	13%	60%	14%	69%	1	10%
Weekday Non-rush Hours	15%	60%	15%	69%	0	9%
Weekends	13%	54%	17%	70%	4	47%
Operators of Motorcycles Who						
Are Riding Alone	12%	88%	16%	61%	4	69%
Have a Passenger Using a DOT-Compliant Helmet	4%	99%	9%	92%	5	65%
Have a Passenger Using a Noncompliant Helmet	67%	100%	50%	86%	-17	55%
Have an Unhelmeted Passenger	17%	67%	3%	100%	-14	91%
Passengers on Motorcycles on Which						
The Operator Is Using a DOT-Compliant Helmet	6%	100%	12%	86%	6	69%
The Operator Is Using a Noncompliant Helmet	44%	99%	58%	100%	14	44%
The Operator Is Unhelmeted	3%	100%	NA		NA	

¹ Use of helmets that do not meet the requirements of Federal Motor Vehicle Safety Standard 218, observed between 7 a.m. and 6 p.m. among motorcycle operators and passengers.

² The level of statistical confidence that use in the motorcyclist group (e.g. motorcyclists in urban areas) is higher or lower than use in the corresponding complementary motorcyclist group (e.g., motorcyclists in suburban and rural areas). Confidence levels that meet or exceed 90% are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100%" confidence are between 99.5% and 100.0%.

³ The degree of statistical confidence that the 2007 use rate is different from the 2006 rate.

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

NA: Data not sufficient to produce a reliable estimate.

Source: National Occupant Protection Use Survey, National Highway Traffic Safety Administration, National Center for Statistics and Analysis

Survey Methodology

The National Occupant Protection Use Survey (NOPUS) is the only probability-based observational survey of motorcycle helmet use in the United States. The survey observes usage as it actually occurs at a random selection of roadway sites, and so provides the best tracking of helmet use in this country.

The survey data is collected by sending observers to a set of probabilistically sampled roadways, who observe motorcyclists between the hours of 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. Observers do not stop motorcycles or interview motorcyclists, so that the NOPUS captures the untainted behavior of riders. The 2007 NOPUS data was collected between June 4 and June 25, while the 2006 data were collected between June 5 and June 26, 2006.

Numbers of	2006	2007
Sites Observed	2,000	2,000
Motorcycles Observed	1,200	1,300
Motorcyclists Observed	1,600	1,500

Because the NOPUS sites were chosen through probabilistic means, we can analyze the statistical significance of its results. Statistically significant increases in helmet use between 2006 and 2007 are identified in the table "Use of Helmets Compliant with Federal Safety Regulation, by Major Characteristics" by having a result that is 90 percent or greater in the table's column 7, and similarly for the subsequent table on the use of noncompliant helmets. Statistical confidence levels that use in a given motorcyclist group, e.g., motorcyclists in the Midwest, is higher or lower than the complementary motorcyclist group, e.g., motorcyclists in the Northeast, South, and West, are provided in columns 3 and 5. Such comparisons are made within categories, such as road type, delineated by changes in row shading in the tables. The exception to this is the grouping "Motorcyclists Traveling During ...," in which weekdays are compared to weekends, and weekday rush hour to weekday non-rush hour.

The NOPUS uses a complex multistage probability sample, statistical data editing, imputation of unknown values, and complex estimation and variance estimation procedures. The 2007 survey results reflect the partial incorporation of a new set of probabilistically-designed observation sites. Specifically, like the 2006 survey, the 2007 survey utilized half of the observation sites from the survey years before 2006 and half of the sites from the newly designed sample of observation sites. The data of 2005 and the years before were obtained from the old observation sites only.

In order to better capture early commuters, the NOPUS began collecting data one hour earlier in 2007. NOPUS data collection now begins at 7 a.m., instead of 8 a.m. in the 2006 and prior surveys. The survey also changed its definitions of "weekday rush hour" in order to end the morning rush hour

30 minutes earlier. The definition of weekday rush hour in 2006 and prior survey years was that data collection at the site began before 10 a.m. or after 3:30 p.m. The definition used in 2007 is that data collection at the site began before 9:30 a.m. or after 3:30 p.m. Neither the new start time nor the new definition of rush hour appeared to have an appreciable impact on the survey results.

Data collection, estimation, and variance estimation for the NOPUS are conducted by Westat, Inc., under the direction of the National Center for Statistics and Analysis in NHTSA under Federal contract number DTNH22-07-D-00057.

Definitions

States With Laws¹ Requiring Helmet Use For All Motorcycle Riders

Alabama	Michigan	North Carolina
California	Mississippi	Oregon
District of Columbia	Missouri	Tennessee
Georgia	Nebraska	Vermont
Louisiana	Nevada	Virginia
Maryland	New Jersey	Washington
Massachusetts	New York	West Virginia

¹ States and the District of Columbia with laws in effect as of June 30, 2007. No State laws took effect during the period June 30, 2006 – June 30, 2007.

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 back of the helmet. However because of the prevalence of counterfeit stickers, NOPUS data collectors categorize DOT-compliant helmets as helmets that cover the motorcyclist's ears or are at least 1 inch thick.

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

"Expressways" are defined to be roadways with limited access, while "surface streets" comprise all other roadways. "Rush hour" is defined to comprise the time periods 7 – 9:30 a.m. and 3:30 – 6 p.m. for the 2007 data, and 8 - 10 a.m. and 3:30 – 6 p.m. for the 2006 data.

A roadway is defined to have "fast traffic" if during the observation period the average speed of passenger vehicles that passed the observer(s) exceeded 50 mph, with "medium speed traffic" defined as 31 - 50 mph, and "slow traffic" defined as 30 mph or slower.

A roadway is defined to have "heavy traffic" if the average number of vehicles per lane mile on the roadway during the

observation period exceeded 45 vehicles per lane mile, with “moderately dense traffic” defined as 26 - 45 vehicles per lane per mile, and “light traffic” having at most 25 vehicles per lane per mile.

The survey uses the following definitions of geographic regions, which are defined in terms of the States contained in the region 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

At the time the 2007 survey was conducted, 20 States and the District of Columbia required all motorcyclists to be helmeted. Other States either required only a subset of riders to use helmets (such as those under age 18), or had no helmet requirement.

For More Information

Detailed analyses of the data in this publication, as well as additional data and information on the survey design and analysis procedures, will be available in upcoming publications to be posted at the Web site <http://www-nrd.nhtsa.dot.gov/CMSWeb/index.aspx> in 2008.

Motorcycle helmets are 37 percent effective at preventing fatality and save approximately 1,500 lives each year. (Traffic Safety Facts: 2005 Data, NHTSA, DOT HS 810620). For more information on the campaign by NHTSA and the States to raise helmet use, see www.nhtsa.gov.

The NOPUS also observes other types of restraints, such as seat belts and child restraints, and observes driver cell phone use. This publication is part of a series that presents overall results from the survey on these topics. Please see other notes in the series, such as “Seat Belt Use in 2007 – Overall Results,” for the latest data on these topics.



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