

Traffic Safety Facts

Research Note

DOT HS 810 678

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Motorcycle Helmet Use in 2006 – Overall Results

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In June 2006, 51 percent of motorcyclists in the United States used DOT-compliant helmets, a 3-percentage-point increase from the 2005 rate. This result is from the National Occupant Protection Use Survey (NOPUS), which provides the only 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.

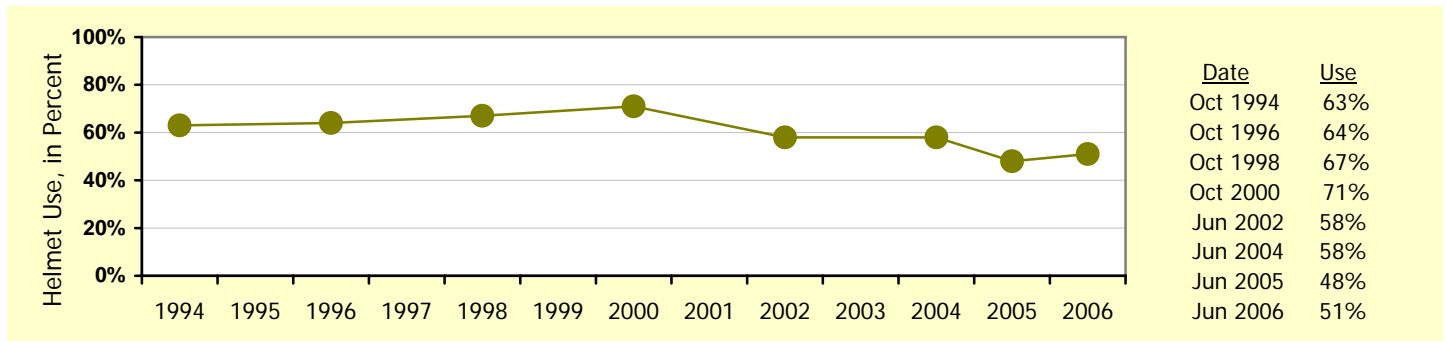
The 2006 survey also found the following:

- The use of helmets that are not compliant with Federal safety regulations stands at 14 percent in 2006, statistically

unchanged from the prior year. Such helmets generally have either an insufficient coverage area or insufficient thickness to provide adequate protection in a crash.

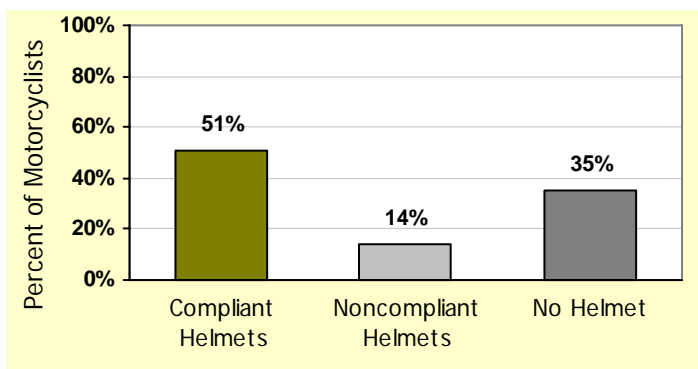
- The use of DOT-compliant helmets increased by 22 percentage points in the West to 72 percent in 2006. However, use in rush hours nationwide dropped by 22 points to 42 percent. These changes are statistically significant.
- Use rates remain statistically lower in States that do not require all riders to use helmets. In 2006, 68 percent of motorcyclists in States requiring helmet use wore DOT-compliant helmets, compared to 37 percent in States not requiring all to use helmets.

Motorcycle Helmet Use, 1994 - Present



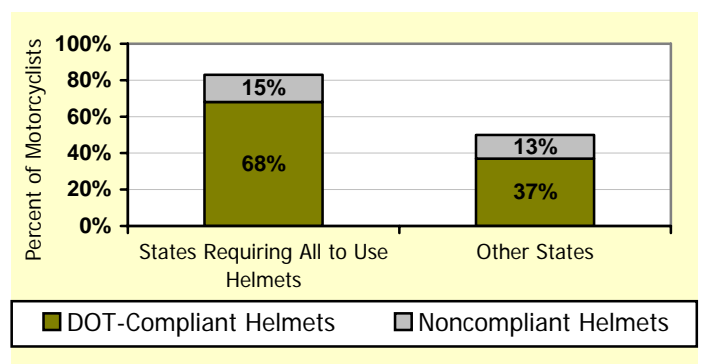
Source: National Occupant Protection Use Survey, NHTSA's National Center for Statistics and Analysis

Motorcycle Helmet Use, by Type of Helmet



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

Motorcycle Helmet Use, by State Law and Helmet Type



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

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

Motorcyclist Group	2005		2006		2005-2006 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	48%		51%		3	33%
Operators	56%	100%	57%	100%	1	12%
Passengers	29%	100%	33%	100%	4	55%
Motorcyclists in States Where ⁴						
Use Is Required for All Motorcyclists	67%	100%	68%	100%	1	9%
Other States	38%	100%	37%	100%	-1	5%
Motorcyclists on						
Expressways	56%	88%	63%	94%	7	68%
Surface Streets	48%	88%	50%	94%	2	30%
Motorcyclists Traveling in						
Fast Traffic	57%	93%	49%	61%	-8	78%
Medium-Speed Traffic	51%	72%	62%	97%	11	79%
Slow Traffic	42%	89%	43%	96%	1	7%
Motorcyclists Traveling in						
Heavy Traffic	NA		NA		NA	
Moderately Dense Traffic	62%	85%	72%	94%	10	40%
Light Traffic	48%	90%	50%	95%	2	30%
Motorcyclists in						
Light Precipitation	66%	99%	NA		NA	
Light Fog	NA		76%	97%	NA	
Clear Weather Conditions	46%	99%	50%	100%	4	50%
Motorcycle Operators When						
They Are the Sole Rider	60%	82%	65%	84%	5	57%
They Have a Passenger	50%	82%	57%	84%	7	52%
Motorcyclists in the						
Northeast	42%	67%	47%	71%	5	24%
Midwest	53%	66%	50%	53%	-3	13%
South	49%	57%	45%	84%	-4	42%
West	50%	59%	72%	100%	22	100%
Motorcyclists in						
Urban Areas	50%	61%	53%	58%	3	16%
Suburban Areas	53%	84%	49%	62%	-4	48%
Rural Areas	43%	84%	52%	58%	9	68%
Motorcyclists Traveling During						
Weekdays	46%	78%	49%	77%	3	23%
Weekday Rush Hours	64%	100%	42%	85%	-22	98%
Weekday Non-Rush Hours	38%	100%	52%	85%	14	89%
Weekends	54%	78%	55%	77%	1	9%
Operators of Motorcycles Who						
Are Riding Alone	58%	85%	57%	50%	-1	14%
Have a Passenger Using a DOT-Compliant Helmet	93%	100%	79%	97%	-14	94%
Have a Passenger Using a Noncompliant Helmet	25%	100%	27%	95%	2	14%
Have an Unhelmeted Passenger	39%	98%	51%	78%	12	97%
Passengers on Motorcycles on Which						
The Operator Is Using a DOT-Compliant Helmet	56%	100%	46%	62%	-10	77%
The Operator Is Using a Noncompliant Helmet	9%	100%	7%	100%	-2	7%
The Operator Is Unhelmeted	4%	100%	24%	100%	20	100%

¹ Use of helmets meeting the safety requirements of Federal Motor Vehicle Safety Standard 218, observed between 8 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 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

³ The degree of statistical confidence that the 2006 use rate is different from the 2005 rate.

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

NA: Data not collected or 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	2005		2006		2005–2006 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	9%		14%		5	86%
Operators	9%	59%	14%	61%	5	87%
Passengers	10%	59%	13%	61%	3	45%
Motorcyclists in States Where ⁴						
Use Is Required for All Motorcyclists	12%	87%	15%	64%	3	51%
Other States	8%	87%	13%	64%	5	78%
Motorcyclists on						
Expressways	18%	93%	14%	55%	-4	40%
Surface Streets	8%	93%	14%	55%	6	91%
Motorcyclists Traveling in						
Fast Traffic	16%	95%	10%	87%	-6	76%
Medium-Speed Traffic	9%	54%	18%	83%	9	88%
Slow Traffic	7%	87%	13%	65%	6	90%
Motorcyclists Traveling in						
Heavy Traffic	NA		29%	74%	NA	
Moderately Dense Traffic	16%	88%	7%	93%	-9	68%
Light Traffic	9%	88%	14%	83%	5	87%
Motorcyclists in						
Light Precipitation	5%	95%	14%	52%	9	73%
Light Fog	NA		16%	55%	NA	
Clear Weather Conditions	10%	97%	14%	56%	4	79%
Motorcycle Operators When						
They Are the Sole Rider	9%	56%	12%	61%	3	42%
They Have a Passenger	8%	56%	19%	61%	11	98%
Motorcyclists in the						
Northeast	5%	82%	9%	92%	4	68%
Midwest	8%	58%	14%	50%	6	67%
South	12%	86%	19%	94%	7	86%
West	10%	61%	6%	98%	-4	55%
Motorcyclists in						
Urban Areas	13%	85%	17%	83%	4	54%
Suburban Areas	10%	66%	14%	59%	4	70%
Rural Areas	8%	78%	13%	62%	5	72%
Motorcyclists Traveling During						
Weekdays	10%	98%	14%	54%	4	65%
Weekday Rush Hours	9%	71%	13%	60%	4	37%
Weekday Non-Rush Hours	11%	71%	15%	60%	4	29%
Weekends	5%	98%	13%	54%	8	96%
Operators of Motorcycles Who						
Are Riding Alone	10%	67%	12%	88%	2	9%
Have a Passenger Using a DOT-Compliant	3%	100%	4%	99%	1	3%
Have a Passenger Using a Noncompliant Helmet	52%	99%	67%	100%	15	53%
Have an Unhelmeted Passenger	6%	96%	17%	67%	11	53%
Passengers on Motorcycles on Which						
The Operator Is Using a DOT-Compliant Helmet	5%	96%	6%	100%	1	2%
The Operator Is Using a Noncompliant Helmet	58%	100%	44%	99%	-14	34%
The Operator Is Unhelmeted	8%	58%	3%	100%	-5	15%

¹ Use of helmets that do not meet the requirements of Federal Motor Vehicle Safety Standard 218, observed between 8 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 percent are formatted in boldface type. Confidence levels are rounded to the nearest percentage point, and so levels reported as "100 percent" confidence are between 99.5 percent and 100.0 percent.

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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 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 8 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 2006 NOPUS data was collected between June 5 and June 26, while the 2005 data was collected between June 6 and June 25, 2005.

Because the NOPUS sites were chosen through probabilistic means, we can analyze the statistical

Numbers of	2005	2006
Sites Observed	1,996	1,878
Motorcycles Observed	1,300	1,200
Motorcyclists Observed	1,700	1,600

significance of its results. Statistically significant increases in helmet use between 2005 and 2006 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 helmet 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 2006 survey results reflect the partial incorporation of a new set of probabilistically-designed observation sites. Specifically, the 2006 survey utilized half of the observation sites from the previous survey years and half of the sites from the newly designed sample of observation sites. The 2005 data was obtained from the old observation sites only. See the upcoming NHTSA Technical Report referenced below for more information on these procedures.

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 DTNH22-00-D-07001.

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 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 8 – 10 a.m. and 3:30 – 6 p.m.

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.

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

¹States and the District of Columbia with laws in effect as of June 30, 2006. No State laws took effect during the period July 1, 2005 – June 30, 2006.

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.

At the time the 2006 and 2005 surveys were 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 18 years old), or had no helmet requirement.

For More Information

For detailed analyses of the data in this publication, as well as additional data and information on the survey design and analysis procedures, see the upcoming publication, “Behavioral Traffic Safety Facts in 2006 – Seat Belt Use, Child Restraint Use, Motorcycle Helmet Use, and Driver Cell Phone Use,” expected to be available at the Web site www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/AvailInf.html in 2007.

The NOPUS also observes other types of restraints, such as child restraints and seat belts, 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 members of the series, such as “Child Restraint Use in 2006 – Overall Results,” for the latest data on these topics.