

Introduction

The Minnesota Motorcycle Safety Program (MMSP) was established by the Minnesota State Legislature in 1982 and began operation in 1983. The mission of MMSP is to reduce motorcycle crashes, injuries, and fatalities. It was one of the first state programs to take a comprehensive approach to motorcycle safety, combining rider training, public information and education, motorcycle testing and licensing, and research. The Minnesota Department of Public Safety Office of Traffic Safety is responsible for the administration of the MMSP. The following study was conducted to capture demographic and safety behavior data about the Minnesota motorcycle riding population for the purposes of directing, designing, and measuring the impact of motorcycle safety countermeasures.

Survey Design

The Minnesota Motorcycle Rider Survey (MMRS) was developed by the Minnesota Department of Public Safety and the Minnesota Motorcycle Safety Center (MMSC). The survey consisted of 28 items designed to investigate five major areas: 1) Rider Characteristics; 2) Rider Experience and Exposure; 3) Rider Safety Equipment and Reflective Gear Use; 4) Rider Perception of Safety Risk; and 5) Rider Opinion about Safety Messaging.

To gauge riding experience and exposure, riders reported number of years experience riding a motorcycle on the street, if they took a rider training course, how many years it has been since their most recent training course, if they were a returning rider (meaning they quit riding for several years, but have taken up riding again), and if they were returning riders how many years they have been riding since returning to motorcycling. Riders were also asked amount of vehicle miles ridden over the past 12 months.

Survey items investigating rider use of safety equipment included frequency of helmet and upper and lower-body protective gear use, reflective and retro-reflective material use, frequency of fluorescent vest use, and presence of additional motorcycle modifications or features (e.g. auxiliary driving lights, etc.).

Items assessing rider perception of safety risk included perception of greatest risk posed to motorcycle rider safety by other drivers and greatest risk motorcycle riders pose to their own safety. Lastly, riders were asked to report what they believe is the best way to reach riders with safety messages.

Methods

The Minnesota Motorcycle Safety Center mailed copies of the 2008 MMRS to a statewide sample of 3,000 registered motorcycle owners January 2008. The sample was drawn from a sampling frame of all registered motorcycle owners (175,154) with duplicate names and addresses removed.¹ Thus, owners of more than one motorcycle were only in the sampling frame once, resulting in a simple random sample with all registered motorcycle owners having an equal

probability of being selected. To increase response rates, a MMSC patch was enclosed with the survey packet. Following the Dillman method, a reminder postcard was sent to the entire sample one week after the initial mailing.²

Completed mail surveys were received from 1,491 persons for a response rate of 49.7%. The response rate on all survey items was above 90%. The survey margin of error is plus or minus 2.6% at the 95% confidence level. The margin of error may be larger for subgroups. The following findings are based on all 1,491 returned surveys unadjusted for age and gender. All statistical analyses were performed using SPSS version 14.0 and GraphPad Software.^{3,4}

Minnesota Rider Demographics and Characteristics

The demographic characteristics of Minnesota motorcycle riders are summarized overall and by age in Table 1. Three out of ten (29.8%) riders are ages 40 to 49, and one out of three riders (33.5%) are ages 50 to 59. One out of ten (10.8%) riders are 29 years of age or younger.

Table 1

Motorcyclist Demographics by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
Age	<i>n</i>	%										
Total	161	10.8	196	13.1	444	29.8	499	33.5	190	12.7	1490	99.9
Missing											1	0.1
Gender^a												
Male	141	88.1	156	80.4	367	82.8	432	89.4	171	93.4	1267	86.6
Female	19	11.9	38	19.6	76	17.2	51	10.6	12	6.6	196	13.4
Missing											28	1.9
Region of Residency[*]												
Northern Minn	13	8.1	26	13.3	42	9.5	53	10.6	21	11.1	155	10.4
Central Minn	51	31.7	45	23.0	116	26.1	119	23.8	51	26.8	382	25.6
Southern Minn	30	18.6	36	18.4	93	20.9	105	21.0	41	21.6	305	20.5
7-County Metro	67	41.6	89	45.4	193	43.5	222	44.5	77	40.5	648	43.5
Missing											0	0.0

^{*}See Appendix 1 for Regional Map

Note. Missing responses are only included in the calculation of the overall column percentages. ^aGender differs as a function of age $\chi^2 = 22.85 p < .001$.

Nearly nine out of ten (86.6%) riders are male, nearly one out of seven (13.4%) are female. Gender was not reported for twenty-eight respondents (1.9%).

More than two out of three (67.8%) female riders are 49 years of age or younger and three out of ten (29.1%) are 39 years of age or younger. Male riders are slightly older than their female counterparts. Nearly one-half (47.6%) of male riders are 50 years of age or older. Nearly one out of four male riders (23.4%) are 39 years of age or younger.

One out of ten riders (10.4%) live in northern Minnesota, one out of four riders (25.6%) live in central Minnesota, and one out of five riders (20.6%) live in southern Minnesota. Two out of five motorcycle riders (43.5%) reside in the seven county metro area. Rider region of residency does not differ significantly as a function of age.

Motorcycle ownership, endorsement status, and motorcycle rider training course history are summarized by age in Table 2. The number of motorcycles owned ranges from 1 to 28 with a mean of 1.6 motorcycles. Three out of five riders (60.6%) own one motorcycle and one out of

Table 2

Number of Motorcycles Owned, Endorsement Status, and Training History by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
Motorcycles Owned^a	<i>n</i>	%										
One	128	79.5	136	69.4	260	58.6	265	53.1	115	60.5	904	60.6
Two	28	17.4	46	23.5	129	29.1	141	28.3	45	23.7	290	26.2
Three	2	1.2	10	5.1	34	7.7	58	11.6	19	10.0	123	8.2
Four or More	3	1.9	4	2.0	21	4.7	35	7.0	11	5.8	7	5.0
Missing											0	0.0
MC Endorsement^b												
Endorsement	125	78.6	172	88.7	397	92.8	468	95.5	171	91.9	1334	89.5
Permit	26	16.4	19	9.8	25	5.8	15	3.1	6	3.2	91	6.1
No Endorsement	8	5.0	3	1.5	6	1.4	7	1.4	9	4.8	33	2.2
Missing											33	2.2
Training^c												
No Training	71	44.1	73	37.4	192	43.7	261	53.3	115	61.5	712	47.8
Training	90	55.9	121	62.1	187	42.6	187	38.2	64	34.2	649	43.5
Training > 25 Yrs Ago	0	0.0	1	0.5	60	13.7	42	8.6	8	4.3	112	7.5
Missing											18	1.2

Note. Missing responses are only included in the calculation of the overall column percentages.

^aMotorcycles owned differs as a function of age $\chi^2 = 55.61 p < .001$. ^bMotorcycle endorsement status differs as a function of age $\chi^2 = 58.86 p < .001$. ^cMotorcycle training history differs as a function of age $\chi^2 = 94.17 p < .001$

four (26.2%) riders own two motorcycles. Riders ages 40 to 59 are nearly two times more likely to own more than one motorcycle than riders ages 39 years of age or younger.

Nine out of ten (89.5%) riders have a motorcycle endorsement on their driver’s license, fewer than one out of ten riders (6.1%) have a permit only, and two percent reported having no endorsement or permit. Riders 29 years of age or younger are five times more likely to have a permit only than riders ages 50 to 59 and riders 60 years of age or older. Riders ages 30 to 39 are three times more likely to have a permit only than riders ages 50 to 59 and riders 60 years of age or older.

Two out of five (43.5%) riders have taken at least one motorcycle rider training course in the past 25 years. Riders 29 years of age or younger and riders ages 30 to 39 were one and one-half times more likely to have taken a motorcycle rider training course than riders ages 50 to 59. Riders ages 30 to 39 were nearly two times more likely to have taken a motorcycle rider training course than riders 60 years of age or older.

Table 3

Number of Motorcycles Owned, Endorsement Status, and Training History by Region of Residence (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>Motorcycles Owned^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
One	102	65.8	239	62.4	163	53.4	400	61.7	904	60.6
Two	38	24.5	97	25.3	93	30.5	162	25.0	290	26.2
Three	10	6.5	33	8.6	35	11.5	45	6.9	123	8.2
Four or More	5	3.2	14	3.7	14	4.6	41	6.3	7	5.0
Missing									0	0.0
<i>MC Endorsement</i>										
Endorsement	137	88.4	349	93.1	266	89.9	582	92.1	1334	89.5
Permit	13	8.4	18	4.8	20	6.8	40	6.3	91	6.1
No Endorsement	5	3.2	8	2.1	10	3.4	10	1.6	33	2.2
Missing									33	2.2
<i>Training^b</i>										
No Training	94	60.6	178	47.2	152	50.7	288	48.3	712	47.8
Rider Training	48	31.0	157	41.6	118	39.3	326	50.9	649	43.5
Training > 25 Yrs Ago	13	8.4	42	11.1	30	10.0	27	4.2	112	7.5
Missing									18	1.2

Note. Missing responses are only included in the calculation of the overall column percentages.

^aNumber of motorcycles owned differs as a function of region of residency $\chi^2 = 17.03 p < .05$. ^bMotorcycle rider training course history differs as a function of region of residency $\chi^2 = 39.89 p < .001$.

Motorcycle ownership, endorsement status, and training history are summarized by region of residency in Table 3. Riders living in southern Minnesota are nearly two times more likely to own three motorcycles than riders living in northern Minnesota and riders living in the seven

county metro. Riders in the seven county metro are two times more likely to own four or more motorcycles than riders in northern Minnesota and central Minnesota. Riders in the seven county metro are nearly one and one-half times more likely to own four or more motorcycles than riders in southern Minnesota.

Five out of ten (50.9%) riders residing in the seven county metro have taken a motorcycle rider training course. Riders residing in the seven county metro are one and a half times more likely to have taken a motorcycle rider training course than riders residing in northern Minnesota. Riders residing in southern Minnesota are two times more likely to have last had training more than 25 years ago than riders residing in the seven county metro. Riders residing in central Minnesota are two and a half times more likely to have last had training more than 25 years ago than riders residing in the seven county metro.

Table 4

Brand and Type of Motorcycle by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
Brand^a	<i>n</i>	%										
BMW	0	0.0	9	4.7	10	2.3	21	4.4	5	2.7	45	3.1
Harley Davidson	34	21.7	59	30.9	185	42.6	199	41.4	67	35.8	544	37.5
Honda	32	20.4	37	19.4	86	19.8	110	22.9	61	32.6	326	22.5
Kawasaki	18	11.5	18	9.4	35	8.1	29	6.0	9	4.8	109	7.5
Suzuki	37	23.6	19	9.9	26	6.0	26	5.4	10	5.3	118	8.1
Yamaha	24	15.3	29	15.2	59	13.6	66	13.7	25	13.4	203	14.0
Other	12	7.6	20	10.5	33	7.6	30	6.2	10	5.3	105	7.2
Missing											40	2.7
Type/Style^b												
Cruiser	67	41.9	96	50.3	158	36.2	169	34.6	67	36.2	557	38.1
Sport Bike	60	37.5	36	18.8	43	9.9	39	8.0	9	4.9	187	12.8
Sport-Touring	19	11.9	30	15.7	86	19.7	97	19.8	26	14.1	258	17.7
Touring	6	3.8	12	6.3	108	8.1	137	28.0	51	27.6	314	21.5
Dual-Sport	4	2.5	6	3.1	19	4.4	16	3.3	2	1.1	47	3.2
Sidecar/Tricycle	0	0.0	0	0.0	3	0.7	6	1.2	6	3.2	15	1.0
Scooter (> 50cc)	4	2.5	11	5.8	19	4.4	25	5.1	24	13.0	83	5.7
Missing											29	1.9

Note. Missing responses are only included in the calculation of the overall column percentages.

^aBrand of motorcycle ridden most often differs as a function of age $\chi^2 = 106.77 p < .001$. ^bType/style of motorcycle ridden most often differs as a function of age $\chi^2 = 218.62 p < .001$.

Brands and types of motorcycles ridden most often are summarized by age in Table 4. Overall, the most commonly ridden motorcycle brands are Harley-Davidson (37.5%) and Honda (22.5%). Riders in their 40s and riders in their 50s are nearly two times more likely to own a Harley-Davidson than riders 29 years of age or younger. Riders 29 years of age or younger are two and

one-half times more likely to own a Kawasaki than riders 60 years of age or older. Riders 29 years of age or younger are nearly four times more likely to own a Suzuki than riders 30 years of age or older.

The most popular styles of motorcycles ridden are cruiser (38.1%) and touring (21.5%). Motorcycle riders 29 years of age or younger are two times more likely than riders in their 30s to ride a sport bike. Riders in their 30s were two times more likely to ride a sport bike most often than riders in their 40s and riders in their 50s. Riders in their 50s are seven times more likely to ride a touring bike most often than riders 29 years of age or younger. Riders 60 years of age or older were four times more likely to ride a touring motorcycle than riders in their 30s. Riders 60 years of age or older were three times more likely to ride a scooter (> 50cc) most often than riders 39 years of age or younger.

Table 5

Brand and Type of Motorcycle by Region of Residency (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>Brand^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
BMW	1	0.7	2	0.5	8	2.7	34	5.4	45	3.1
Harley Davidson	53	34.6	141	38.1	123	41.7	227	35.9	544	37.5
Honda	43	28.1	97	26.2	68	23.1	118	18.6	326	22.5
Kawasaki	10	6.5	32	8.6	20	6.8	48	7.6	109	7.5
Suzuki	11	7.2	22	5.9	22	7.5	63	10.0	118	8.1
Yamaha	23	15.0	56	15.1	38	12.9	86	13.6	203	14.0
Other	12	7.8	20	5.4	16	5.4	57	9.0	105	7.2
Missing									40	2.7
<i>Type/Style</i>										
Cruiser	63	42.0	143	38.2	106	35.6	245	38.3	557	38.1
Sport Bike	19	12.7	47	12.6	37	12.4	84	13.1	187	12.8
Sport-Touring	20	13.3	65	17.4	48	16.1	126	19.7	258	17.7
Touring	30	20.0	91	24.3	75	25.2	118	18.4	314	21.5
Dual-Sport	5	3.3	8	2.1	11	3.7	23	3.6	47	3.2
Sidecar/Tricycle	1	0.7	3	0.8	4	1.3	7	1.1	15	1.0
Scooter (> 50cc)	12	8.0	17	4.5	17	5.7	37	5.8	83	5.7
Missing									29	1.9

Note. Missing responses are only included in the calculation of the overall column percentages.

^aBrand of motorcycle ridden most often differs as a function of region of residency $\chi^2 = 45.08$ $p < .001$.

Brands and types of motorcycles are summarized by region in Table 5. Riders living in the seven county metro are two times more likely to ride a BMW most often than riders in southern Minnesota, and eight times more likely to ride a BMW most often than riders in northern Minnesota. Riders in the seven county metro are ten times more likely to ride a BMW most often

than riders in central Minnesota. Riders in the seven county metro are two times more likely to ride a Suzuki than riders in central Minnesota. Type of motorcycle ridden does not differ significantly by region.

Riding Experience and Exposure

Amount of miles ridden are summarized by age in Table 6. Motorcyclists reported riding anywhere from 0 to 37,000 miles in the past 12 months, with a mean of 3,906 miles. Nearly half (46.4%) of the riders reported riding fewer than 3,000 miles. One out of four (25.9%) riders reported riding 5,000 miles or more. On average, riders in their 50s and riders in their 60s ride more miles annually than riders in their 30s and riders 29 years or younger ($p < .001$). Average miles ridden does not differ significantly by rider region of residency.

Table 6

Average Miles Ridden by Age (N = 1,491)

<i>Age</i>	<i>n</i>	\bar{X}	<i>95% CI</i>
< 30	159	3,304	(2,804 – 3,804)
30-39	193	3,128	(2,656 – 3,600)
40-49	441	3,608	(3,307 – 3,908)
50-59	497	4,448	(4,101 – 4,795)
60+	189	4,484	(3,768 – 5,201)
Missing	11		
Overall	1,480	3,906	(3,714 – 4,098)

Motorcyclists reported having anywhere from less than a year to 65 years of experience riding motorcycles on the street with a mean of 18.04 years. One out of two riders (51.5%) has less than 16 years riding experience. One out of four (28.4%) riders has fewer than a year to 5 years experience. One out of three riders (32.7%) has more than 25 years riding experience. Riders 50 years of age or older were more likely than riders 49 years of age or younger to have more than 20 years riding experience ($p < .001$). Years of riding experience does not differ significantly by region of residency.

More than one out of three (35.3%) riders are returning riders. Returning riders reported anywhere from 1 to 40 years of riding since returning to motorcycling riding with a mean of 6.41 years. A majority of returning riders took up motorcycle riding again recently: three out of five (59.6%) have been riding 5 years or less since returning to riding, and one out of five (20.3%) have been riding 6 to 10 years since returning to riding.

Seven out of ten (69.6%) riders in their 40s have been riding for five years or less since returning to riding. Three out of five (61.4%) riders in their 50s, and two out of five (42.3%) riders 60 years of age or older have been riding for five years or less since returning. Seven out of ten (70.5%) riders 60 years of age or older have been riding 10 years or less since returning to riding. Years of riding since returning to motorcycling does not differ significantly by region of residency.

Table 7

Riding Experience and Returning Riders (N = 1,491)

	<i>Overall</i>	
<i>Years of Riding Experience</i>	<i>n</i>	<i>%</i>
5 Years or Less	424	28.4
6 – 10 Years	230	15.4
11 – 15 Years	108	7.2
16 – 20 Years	115	7.7
21 – 25 Years	114	7.6
> 25 Years	488	32.7
Missing	12	0.8
<i>How Many Years Since Most Recent Training Course</i>		
5 Years or Less	402	52.8
6 – 10 Years	114	15.0
11 – 15 Years	31	4.1
16 – 20 Years	44	5.8
21 – 25 Years	43	5.7
> 25 Years	112	14.7
Missing	15	2.0
<i>Are You a Returning Rider</i>		
Yes	527	35.3
No	923	61.9
Missing	41	2.7
<i>If Returning Rider, How Many Years Have You Been Riding Since Returning</i>		
5 Years or Less	314	59.6
6 – 10 Years	107	20.3
11 – 15 Years	38	7.2
16 – 20 Years	16	3.0
21 – 25 Years	8	1.5
> 25 Years	12	2.3
Missing	32	6.1

Helmet and Other Safety Equipment Use

Frequency of helmet use when riding is summarized by age in Table 8. Six out of ten riders (59.1%) wear a helmet either “most of the time” or “all of the time” when they ride. Three out of ten (30.4%) riders “never” or “rarely” wear helmets when they ride. Riders 60 years of age or

Table 8

Helmet Use and Type by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
How Often Do You Wear A Helmet^a	<i>n</i>	<i>%</i>										
Never	16	9.9	31	15.8	64	14.5	62	12.5	18	9.5	191	12.8
Rarely	29	18.0	30	15.3	100	22.6	82	16.5	21	11.1	262	17.6
Half of the Time	22	13.7	16	8.2	39	8.8	55	11.1	21	11.1	153	10.3
Most of the Time	38	23.6	46	23.5	86	19.5	95	19.1	35	18.4	300	20.1
All of the Time	56	34.8	73	37.2	153	34.6	203	40.8	95	50.0	581	39.0
Missing											4	0.3
What Type of Helmet Do You Wear Most Often^b												
Half Helmet	25	17.4	45	27.4	103	27.6	115	26.8	36	17.4	324	25.0
Three-Quarter Helmet	13	9.0	19	11.6	75	20.1	136	31.7	67	39.9	310	23.9
Full-Faced Helmet	104	72.2	99	60.4	193	51.7	178	41.5	64	38.1	639	49.3
Novelty Helmet	2	1.4	1	0.6	2	0.5	0	0.0	1	0.6	6	0.5
Missing											17	1.3
What is the Color of the Helmet You Wear Most Often^c												
Black	66	46.5	102	63.0	237	63.4	284	66.2	88	52.4	777	60.0
White	4	2.8	4	2.5	19	5.1	23	5.4	20	11.9	70	5.4
Solid Bright Color	12	8.5	19	11.7	41	11.0	50	11.7	24	14.3	146	11.3
Solid Dark Color	8	5.6	8	4.9	19	5.1	34	7.9	13	7.7	83	6.4
Multi-Color Bright	29	20.4	11	6.8	36	9.6	25	5.8	14	8.3	115	8.9
Multi-Color Dark	23	16.2	18	11.1	22	5.9	13	3.0	9	5.4	85	6.6
Missing											20	1.5
Does the Helmet You Wear Most Often Have Reflective Material												
Yes	36	25.5	41	24.8	105	27.9	113	26.2	52	31.1	347	26.8
No	105	74.5	124	75.2	272	72.1	318	73.8	115	68.9	935	72.1
Missing											14	1.1

Note. Missing responses are only included in the calculation of the overall column percentages.

^aHelmet use differs as a function of age $\chi^2 = 32.97 p < .01$. ^bType of helmet differs as a function of age $\chi^2 = 93.78 p < .001$.

^cColor of helmet differs as a function of age $\chi^2 = 92.55 p < .001$.

older were nearly one and one-half times more likely to wear a helmet “all of the time” than riders 29 years of age or younger. Riders in their 30s were one and one half times more likely to report “never” wearing a helmet than riders 29 years of age or less.

Of those who at least “rarely” wear a helmet, nearly half (49.3%) wear a full-faced helmet. One out of four riders (25.0%) wears a half helmet. Four out of ten riders (39.9%) 60 years of age or older wear a three-quarter helmet. Riders 29 years of age or younger are two times more likely to wear a full-faced helmet than riders 60 years of age or older.

Table 9

Helmet Use and Type by Region (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>How Often Do You Wear A Helmet^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Never	22	14.3	41	10.7	58	19.0	70	10.8	191	12.8
Rarely	28	18.2	95	24.9	58	19.0	81	12.5	262	17.6
Half of the Time	19	12.3	51	13.4	30	9.8	53	8.2	153	10.3
Most of the Time	28	18.2	76	19.9	66	21.6	130	20.1	300	20.1
All of the Time	57	37.0	119	31.2	93	30.5	312	48.3	581	39.0
Missing									4	0.3
<i>What Type of Helmet Do You Wear Most Often</i>										
Half Helmet	36	27.7	86	25.7	64	26.3	138	24.2	324	25.0
Three-Quarter Helmet	39	30.0	73	21.8	55	22.6	143	25.0	310	23.9
Full-Faced Helmet	54	41.5	175	52.2	124	51.0	286	50.1	639	49.3
Novelty Helmet	1	0.8	1	0.3	0	0.0	4	0.7	6	0.5
Missing									17	1.3
<i>What is the Color of the Helmet You Wear Most Often</i>										
Black	83	63.8	215	63.8	161	65.7	318	56.4	777	60.0
White	8	6.2	17	5.0	8	3.3	37	6.6	70	5.4
Solid Bright Color	14	10.8	26	7.7	22	9.0	84	14.9	146	11.3
Solid Dark Color	8	6.2	22	6.5	15	6.1	38	6.7	83	6.4
Multi-Color Bright	11	8.5	32	9.5	22	9.0	50	8.9	115	8.9
Multi-Color Dark	6	4.6	25	7.4	17	6.9	37	6.6	85	6.6
Missing									20	1.5

Note. Missing responses are only included in the calculation of the overall column percentages.

^aHelmet use differs as a function of region $\chi^2 = 67.53 p < .001$.

Three out of five (60.0%) riders that at least “rarely” wear a helmet wear black helmets. Riders in their 30s, 40s, and 50s, are more likely to wear black helmets than riders 29 years of age or

younger and riders 60s years of age or older. Riders 29 years of age or younger are two and one-half times more likely to wear multi-color bright helmets than riders 30 years of age or older. More than one out of four (26.8%) riders have reflective materials on the helmet they wear most often.

Seven out of ten (68.4%) riders in the seven county metropolitan area wear a helmet “most of the time” or “all the time”. One out of three riders in northern Minnesota and southern Minnesota (32.5% and 36.7% respectively) “rarely” or “never” wear a helmet. Nearly four out of ten (38.0%) riders in central Minnesota “rarely” or “never” wear a helmet. Type of helmet worn, color of helmet worn, and helmet having reflective material do not differ by region.

Table 9 (continued)

Helmet Use and Type by Region (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>Does the Helmet You Wear Most Often Have Reflective Material</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Yes	31	23.7	99	29.4	63	25.9	154	27.0	347	26.8
No	100	76.3	238	70.6	180	74.1	417	73.0	935	72.1
Missing									14	1.1

Note. Missing responses are only included in the calculation of the overall column percentages.

Use of protective and reflective gear is summarized by age in Table 10. Six out of ten riders (59.7%) wear protective upper-body clothing “most of the time” or “all the time”. Fewer than one out of ten (7.8%) riders “never” wear protective upper-body clothing. Riders 29 years of age or younger were two and one-half times more likely to “rarely” or “never” wear protective upper-body gear than riders in their 30s.

Seven out of ten (69.7%) riders that at least “rarely” wear protective upper-body gear wear black protective upper-body gear. Fewer than one out of ten (5.9%) riders wears multi-colored bright protective upper-body gear. Riders 29 years of age or younger are two and one half times more likely to wear multi-colored bright upper-body gear than riders 30 years of age or older.

Six out of ten (63.9%) riders “rarely” or “never” wear protective lower-body clothing when riding. Riders in their 30s and 40s are two times more likely to wear protective lower-body clothing “most of the time” or “all the time” than riders 29 years of age or younger. Riders in their 50s are two and one half times more likely to wear protective lower-body gear “most of the all time” or “all the time” than riders 29 years of age or younger.

Table 10

Protective and Reflective Gear Use by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
<i>How Often Do You Wear Protective Upper-Body Clothing^a</i>	<i>n</i>	<i>%</i>										
Never	20	12.4	10	5.1	29	6.5	36	7.2	21	11.1	116	7.8
Rarely	20	12.4	12	6.2	35	7.9	43	8.6	16	8.5	126	8.5
Half of the Time	32	19.9	54	27.7	119	26.8	111	22.3	41	21.7	357	23.9
Most of the Time	54	33.5	67	34.4	182	41.0	203	40.8	75	39.7	581	39.0
All of the Time	35	21.7	52	26.7	79	17.8	105	21.1	36	19.0	308	20.7
Missing											3	0.2
<i>What is the Color of the Protective Upper-Body Clothing You Wear^b</i>												
Black	88	62.9	136	74.3	287	71.6	334	73.7	111	67.7	956	69.7
White	3	2.1	4	2.2	2	0.5	5	1.1	1	0.6	15	1.1
Solid Bright Color	5	3.6	7	3.8	24	6.0	23	5.1	16	9.8	76	5.5
Solid Dark Color	13	9.3	8	4.4	40	10.0	47	10.4	16	9.8	124	9.0
Multi-Colored Bright	18	12.9	12	6.6	22	5.5	18	4.0	11	6.7	81	5.9
Multi-Colored Dark	13	9.3	16	8.7	26	6.5	26	5.6	9	5.5	90	6.6
Missing											30	2.2
<i>How Often Do You Wear Protective Lower-Body Clothing^c</i>	<i>n</i>	<i>%</i>										
Never	93	57.8	79	40.3	162	36.6	167	33.5	81	42.9	582	39.0
Rarely	36	22.4	48	24.5	106	23.9	136	27.3	45	23.8	372	24.9
Half of the Time	21	13.0	42	21.4	111	25.1	111	22.2	37	19.6	322	21.6
Most of the Time	10	6.2	18	9.2	40	9.0	59	11.8	16	8.5	143	9.6
All of the Time	1	0.6	9	4.6	24	5.4	26	5.2	10	5.3	70	4.7
Missing											2	0.1
<i>How Often Do You Wear Riding Gear With Reflective Material^d</i>	<i>n</i>	<i>%</i>										
Never	81	50.3	85	43.4	221	49.1	244	49.1	93	48.9	724	48.6
Rarely	35	21.7	50	25.5	114	25.7	138	27.8	48	25.3	385	25.8
Half of the Time	8	5.0	17	8.7	40	9.0	34	6.8	25	13.2	124	8.3
Most of the Time	15	9.3	23	11.7	42	9.5	46	9.3	14	7.4	141	9.5
All of the Time	22	13.7	21	10.7	26	5.9	35	7.0	10	5.3	114	7.6
Missing											3	0.2

Note. Missing responses are only included in the calculation of the overall column percentages.

^aUse of protective upper-body clothing differs as a function of age $\chi^2 = 27.82 p < .05$. ^bColor of protective upper-body clothing differs as a function of age $\chi^2 = 38.23 p < .01$. ^cUse of protective lower-body clothing differs as a function of age $\chi^2 = 41.54 p < .001$. ^dUse of gear with reflective material differs as a function of age $\chi^2 = 27.33 p < .05$.

Three out of four riders (74.4%) “never” or “rarely” wear riding gear with reflective materials. Riders 29 years of age or younger are nearly two times more likely to wear riding gear with reflective materials “most of the time” or “all the time” than riders 60 years of age or older.

Nine out of ten riders (91.1%) “never” wear a fluorescent vest while riding their motorcycles. Wearing a fluorescent vest does not differ significantly by age. Wearing a fluorescent vest while riding does not differ significantly by rider region of residency.

Table 10 (continued)

Fluorescent Vest Use by Age (N = 1,491)

<i>How Often Do You Wear a Fluorescent Yellow, Green, or Orange Vest When Riding</i>	<i>< 30</i>		<i>30-39</i>		<i>40-49</i>		<i>50-59</i>		<i>60+</i>		<i>Overall</i>	
	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Never	155	96.3	182	93.3	400	90.1	454	91.2	166	87.8	1,358	91.1
Rarely	4	2.5	11	5.6	34	7.7	30	6.0	13	6.9	92	6.2
Half of the Time	0	0.0	1	0.5	4	0.9	7	1.4	5	2.6	17	1.1
Most of the Time	1	0.6	1	0.5	4	0.9	5	1.0	3	1.6	14	0.9
All of the Time	1	0.6	0	0.0	2	0.5	2	0.4	2	1.1	7	0.5
Missing											3	0.2

Note. Missing responses are only included in the calculation of the overall column percentages.

Use of protective and reflective gear by region is summarized in Table 11. Two out of three riders (65.5%) in the seven county metro wear protective upper-body clothing “most of the time” or “all of the time”. Nearly one-half (48.5%) of riders in the south wear protective upper-body gear “most of the time” or “all of the time”. Riders in northern Minnesota are two times less likely to “rarely” or “never” wear protective upper-body clothing than riders in southern Minnesota.

Two out of three riders in the seven county metro that at least “rarely” wear upper-body protective gear, wear black protective upper-body gear. Riders in northern and central Minnesota are two and one half times more likely to wear multi-colored bright protective upper-body gear than riders in southern Minnesota. Riders in the seven county metro are two times more likely to wear white protective upper-body gear than riders in northern Minnesota.

Riders in the seven county metro are one and one-half times more likely to wear riding gear with reflective material than riders in other regions of the state. One out of five riders (21.2%) in the seven county metro wear riding gear with reflective materials “most of the time” or “all of the time”, compared to one out of ten riders (12.2%) in southern Minnesota, one out of seven (15.5%) riders in northern Minnesota, and one out of six (15.7%) riders in central Minnesota. Use of protective lower-body clothing or a fluorescent vest does not differ by region.

Table 11

Protective and Reflective Gear Use by Region (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>How Often Do You Wear Protective Upper-Body Clothing^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Never	10	6.5	29	7.6	39	12.8	38	5.9	116	7.8
Rarely	7	4.5	39	10.2	27	8.9	53	8.2	126	8.5
Half of the Time	48	31.0	86	22.5	91	29.8	132	20.4	357	23.9
Most of the Time	59	38.1	161	42.1	105	34.4	256	39.6	581	39.0
All of the Time	31	20.0	67	17.5	43	14.1	167	25.9	308	20.7
Missing									3	0.2
<i>What is the Color of the Protective Upper-Body Clothing You Wear^b</i>										
Black	102	72.3	263	76.5	199	76.2	392	65.8	956	69.7
White	1	0.7	3	0.9	2	0.8	9	1.5	15	1.1
Solid Bright Color	7	5.0	12	3.5	17	6.5	40	6.7	76	5.5
Solid Dark Color	9	6.4	26	7.6	19	7.3	70	11.7	124	9.0
Multi-Colored Bright	8	5.7	19	5.5	6	2.3	48	8.1	81	5.9
Multi-Colored Dark	14	9.9	21	6.1	18	6.9	37	6.2	90	6.6
Missing									30	2.2
<i>How Often Do You Wear Protective Lower-Body Clothing</i>										
Never	55	35.5	148	38.7	119	39.1	260	40.1	582	39.0
Rarely	45	29.0	85	22.3	79	26.0	163	25.2	372	24.9
Half of the Time	32	20.6	91	23.8	62	20.4	137	21.1	322	21.6
Most of the Time	18	11.6	38	9.9	29	9.5	58	9.0	143	9.6
All of the Time	5	3.2	20	5.2	15	4.9	30	4.6	70	4.7
Missing									2	0.1
<i>How Often Do You Wear Riding Gear With Reflective Material^c</i>										
Never	78	50.6	189	49.3	159	52.1	298	46.1	724	48.6
Rarely	44	28.6	98	25.6	88	28.9	155	24.0	385	25.8
Half of the Time	8	5.2	36	9.4	24	7.9	56	8.7	124	8.3
Most of the Time	13	8.4	41	10.7	20	6.6	67	10.4	141	9.5
All of the Time	11	7.1	19	5.0	14	4.6	70	10.8	114	7.6
Missing									3	0.2

Note. Missing responses are only included in the calculation of the overall column percentages.

^aUse of protective upper-body clothing differs as a function of region $\chi^2 = 48.02 p < .001$. ^bColor of protective upper-body clothing differs as a function of region $\chi^2 = 31.02 p < .01$. ^cUse of gear with reflective material differs as a function of region $\chi^2 = 26.68 p < .001$.

Table 11 (continued)

Fluorescent Vest Use by Region (N = 1,491)

	<i>Northern Minn</i>		<i>Central Minn</i>		<i>Southern Minn</i>		<i>7-County Metro</i>		<i>Overall</i>	
<i>How Often Do You Wear a Fluorescent Yellow, Green, or Orange Vest When Riding</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Never	143	92.3	346	90.8	281	92.1	588	90.9	1,358	91.1
Rarely	8	5.2	25	6.6	17	5.6	42	6.5	92	6.2
Half of the Time	1	0.6	5	1.3	3	1.0	8	1.2	17	1.1
Most of the Time	1	0.6	5	1.3	4	1.3	4	0.6	14	0.9
All of the Time	2	1.3	0	0.0	0	0.0	5	0.8	7	0.5
Missing									3	0.2

Note. Missing responses are only included in the calculation of the overall column percentages.

Nearly one-half (47.2%) of riders in Minnesota have some sort of high visibility feature or modification to enhance conspicuity (i.e. make a rides more visible to other drivers) on their motorcycle. More than one-half of riders in their 50s and riders 60 years of age or older have features or modifications on their motorcycles (51.6% and 56.5% respectively). Nearly four out of ten (37.9%) riders ages 30 to 39 have features or modifications on their motorcycles.

Riders 50 years of age or older were slightly more likely to have features or modifications on their motorcycles than riders 49 years of age or younger. Having features or modification does not differ significantly by region of residency.

Table 12

Presence of Motorcycle Modifications by Age (N = 1,491)

	<i>< 30</i>		<i>30-39</i>		<i>40-49</i>		<i>50-59</i>		<i>60+</i>		<i>Overall</i>	
<i>Does Your Motorcycle Have Any Features or Modifications^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Yes	67	42.9	72	37.9	206	46.8	257	51.6	105	56.5	707	47.4
No	89	57.1	118	62.1	234	53.2	241	48.4	81	43.5	764	51.2
Missing											20	1.3

Note. Missing responses are only included in the calculation of the overall column percentages.

^aPresence of features or modifications differs as a function of age $\chi^2 = 17.52 p < .01$.

Types of features or modifications are summarized by age in Table 13. Of riders with features or modifications, fewer than one out of five (16.4%) have an aftermarket horn. Riders 60 years of age or older are more than three times more likely than riders 29 years of age or younger, two

times more likely than riders in their 30s, and nearly two times more than riders in their 40s to have an aftermarket horn.

Of the riders with features or modifications, six out of ten (61.0%) have auxiliary driving lights. Riders 50 years of age or older are nearly two times more likely to have auxiliary driving lights on their motorcycles than riders 29 years of age or younger. Of the riders with features or modifications, one out of five (20.8%) has a headlight modulator. Having a headlight modulator does not differ significantly by age.

Table 13

Types of Modifications by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
Features/Modifications	<i>n</i>	<i>%</i>										
Aftermarket Horn^b												
Yes	5	7.5	9	12.5	28	13.6	48	18.7	26	24.8	116	16.4
No	62	92.5	63	87.5	178	86.4	209	81.3	79	75.2	591	83.6
Missing											0	0.0
Features/Modifications												
Auxiliary Driving Light^c												
Yes	24	36.4	40	55.6	123	59.7	174	67.7	70	66.7	431	61.0
No	42	63.6	32	44.4	83	40.3	83	32.3	35	33.3	275	38.9
Missing											1	0.1
Features/Modifications												
Headlight Modulator												
Yes	12	17.9	21	29.2	45	21.8	46	17.9	23	21.9	147	20.8
No	55	82.1	51	70.8	161	78.2	211	82.1	82	78.1	560	79.2
Missing											0	0.0

Note. Missing responses are only included in the calculation of the overall column percentages.

^bPresence of aftermarket horn differs as a function of age $\chi^2 = 12.21$ $p < .05$. ^cPresence of auxiliary driving lights differs as a function of age $\chi^2 = 24.16$ $p < .001$.

Of the riders with features or modifications, nearly one-half (46.8%) have position (marker) lights on their motorcycles. Of the riders with features or modifications, nearly two out of five (36.4%) have reflective tape or reflective stickers on their motorcycles. Of the riders with features or modifications, nearly one-third (31.5%) have taillight modulators on their motorcycles. Having position (marker) lights, reflective tape or stickers, or taillight modulators on motorcycle does not differ significantly by age.

Table 13 (continued)

Types of Modifications by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
<i>Features/Modifications</i>	<i>n</i>	<i>%</i>										
<i>Position (Marker) Lights</i>												
Yes	35	52.2	33	45.8	103	50.0	108	42.0	51	48.6	330	46.7
No	32	47.8	39	54.2	103	50.0	149	58.0	54	51.4	377	53.3
Missing											0	0.0
<i>Reflective Tape/Stickers</i>												
Yes	21	31.3	28	38.9	76	37.1	94	36.6	67	63.8	257	36.4
No	46	68.7	44	61.1	129	62.9	163	63.4	38	36.2	449	63.5
Missing											1	0.1
<i>Taillight Modulator</i>												
Yes	25	37.3	26	36.1	59	28.6	76	29.6	37	35.2	223	31.5
No	42	62.7	46	63.9	147	71.4	181	70.4	68	64.8	484	68.5
Missing											0	0.0

Note. Missing responses are only included in the calculation of the overall column percentages.

Perception of Safety Risks

Motorcycle riders' perceptions of safety risks posed by other drivers and motorcycle riders themselves are summarized by age in Table 14. More than two out of three riders (67.7%) believe other drivers' inattention or driving while distracted is the greatest risk posed to riders by other motorists. More than one out of ten (12.9%) riders believe that failure to yield right of way is the greatest risk posed to riders by other motorists. Riders 40 years of age or older are three and one-half times more likely to believe failure to yield right of way is the greatest risk posed by other motorists than riders 39 years of age or younger. Riders 60 years of age or older are nearly two and one-half times more likely to believe reckless driving and/or speeding is the greatest risk posed by other motorists than riders 59 years of age or younger. Riders' perception of safety risks posed by other drivers does not differ significantly by region.

One out of four riders (25.2%) believes reckless riding and/or speeding is the greatest risk motorcycle riders pose to their own safety. One out of five riders believes that lack of riding skills/training or rider inexperience (20.6% and 19.9% respectively) is the greatest risk motorcycle riders pose to their own safety. Riders 60 years of age or older are two times more likely to believe that rider inattention/distraction is the greatest risk motorcycle riders pose to their own safety than riders 29 years of age or younger. Riders 29 years of age or younger are one and one-half times more likely to believe that lack of riding skills/training is the greatest risk riders pose to their own safety than riders 60 years of age or older. Riders in their 50s are nearly

Table 14

Perception of Safety Risks by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
<i>Greatest Risk to MC Riders Posed By Other Drivers^a</i>	<i>n</i>	<i>%</i>										
Drinking and Driving	9	5.8	5	2.7	17	4.0	27	5.6	13	7.2	71	4.8
Driver Inattention/Distracton	113	73.4	152	81.3	303	71.0	333	69.7	108	60.0	1,010	67.7
Failure to Yield Right of Way	7	4.5	9	4.8	62	14.5	81	16.9	33	18.3	192	12.9
Following Too Closely	13	8.4	9	4.8	21	4.9	15	3.1	6	3.3	64	4.3
Reckless Driving/Speeding	5	3.2	8	4.3	13	3.0	11	2.3	13	7.2	50	3.4
Other	7	4.5	4	2.1	11	2.6	11	2.3	7	3.9	40	2.7
Missing											64	4.3
<i>Greatest Risk MC Riders Pose To Own Safety^b</i>												
Drinking and Riding	26	16.6	32	16.8	66	15.6	76	15.9	41	22.5	242	16.2
Lack of Riding Skills/Training	37	23.6	41	21.6	101	23.8	102	21.3	26	14.3	307	20.6
Reckless Riding/Speeding	46	29.3	48	25.3	119	28.1	115	24.1	47	25.8	375	25.2
Rider Inattention/Distracton	17	10.8	24	12.6	48	11.3	58	12.1	38	20.9	185	12.4
Rider Inexperience	28	17.8	42	22.1	82	19.3	119	24.9	25	13.7	296	19.9
Other	3	1.9	3	1.6	8	1.9	8	1.7	5	2.7	27	1.8
Missing											59	4.0

Note. Missing responses are only included in the calculation of the overall column percentages.

^aGreatest risk other drivers pose to motorcycle rider safety differs as a function of age $\chi^2 = 59.71 p < .001$. ^bGreatest risk motorcycle riders pose to themselves differs as a function of age $\chi^2 = 32.98 p < .05$.

two times more likely to believe lack of riding skills/training is the greatest risk motorcycle riders pose to their own safety than riders 60 years of age or older. Riders in their 50s are nearly two times more likely to believe rider inexperience is the greatest risk motorcycle riders pose to their own safety than riders 60 years of age or older. Riders' perception of safety risks posed by motorcycle riders themselves does not differ significantly by region.

Riders' perception of the best way to reach riders with safety messages is summarized by age in Table 15. Nearly one out of three (31.4%) riders believes the best way to reach riders with safety messages is through television ads. Nearly one out of five (17.2%) riders believes the best way to reach riders with messages is through outdoor and/or billboard ads. Riders 39 years of age or younger are nearly three times more likely to believe that indoor/bathroom ads are the best way to reach riders with safety messages than riders 40 years of age or older. Riders 29 years of age or younger were one and one-half times more likely to believe that safety ads at motorcycle events and rallies are the best way to reach riders than riders in their 30s and riders in their 40s. Riders in their 40s are nearly one and one-half times more likely to believe messaging at motorcycle dealers and shops is the best way to reach riders than riders 29 years of age or younger.

Table 15

Rider Safety Messages by Age (N = 1,491)

	< 30		30-39		40-49		50-59		60+		Overall	
<i>What Do You Believe is the Best Way to Reach Riders with Safety Messages^a</i>	<i>n</i>	<i>%</i>										
Indoor/Bathroom Ads	16	10.7	16	9.0	11	2.7	18	3.9	6	3.5	67	4.5
MC Events/Rallies	33	22.0	25	14.1	55	13.6	83	18.0	26	15.2	223	15.0
MC Dealers/Shops	19	12.7	19	10.7	71	17.5	73	15.8	24	14.0	206	13.8
Outdoor Billboard Ads	25	16.7	44	24.9	70	17.3	84	18.2	34	19.9	257	17.2
Radio Ads	14	9.3	14	7.9	31	7.1	38	8.2	7	4.1	104	7.0
Television Ads	40	20.6	52	29.4	155	38.3	149	32.3	72	42.1	468	31.4
Web/Internet	3	2.0	7	4.0	12	3.0	17	3.7	2	1.2	41	2.7
Missing											125	8.4

Note. Missing responses are only included in the calculation of the overall column percentages.

^aBest way to reach riders with safety messages differs as a function of age $\chi^2 = 53.90 p < .001$.

Riders' perception of the best way to reach riders with safety messages is summarized by region in Table 16. Riders residing in the seven county metro are two and one-half times more likely than riders residing in other regions of the state to believe that the web/internet are the best way to reach riders with safety messages. Riders in northern Minnesota are one and one-half times more likely to believe radio ads are the best way to reach riders than riders in the seven county metro.

Table 16

Rider Safety Messages by Region of Residency (N = 1,491)

	Northern Minn		Central Minn		Southern Minn		7-County Metro		Overall	
<i>What Do You Believe is the Best Way to Reach Riders with Safety Messages^a</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Indoor/Bathroom Ads	5	3.4	11	3.2	16	5.7	35	5.9	67	4.5
MC Events/Rallies	25	17.2	74	21.6	48	17.0	76	12.7	223	15.0
MC Dealers/Shops	12	8.3	53	15.5	54	19.1	87	14.6	206	13.8
Outdoor Billboard Ads	28	19.3	46	13.5	59	20.9	124	20.8	257	17.2
Radio Ads	17	11.7	28	8.2	17	6.0	42	7.0	104	7.0
Television Ads	56	38.6	126	36.8	80	28.4	206	34.5	468	31.4
Web/Internet	2	1.4	4	1.2	8	2.8	27	4.5	41	2.7
Missing									125	8.4

Note. Missing responses are only included in the calculation of the overall column percentages.

^aBest way to reach riders with safety messages differs as a function of region $\chi^2 = 48.30 p < .001$.

Key Findings

Three out of four riders are (76.4%) ages 30 to 59. Nearly nine out of ten (86.6%) riders are male, nearly one out of seven (13.4%) are female. Two out of five motorcycle riders (43.5%) reside in the seven county metro area.

Nine out of ten (89.5%) riders have a motorcycle endorsement on their driver's license, fewer than one out of ten riders (6.1%) have a permit only, and two percent reported having no endorsement or permit.

Two out of five (43.5%) riders have taken at least one motorcycle rider training course in the past 25 years. Five out of ten (50.9%) riders residing in the seven county metro have taken a motorcycle rider training course.

Riders in their 40s and riders in their 50s are nearly two times more likely to own a Harley-Davidson than riders 29 years of age or younger. Riders 29 years of age or younger are nearly four times more likely to own a Suzuki than riders 30 years of age or older.

Motorcyclists reported riding anywhere from 0 to 37,000 miles in the past 12 months, with a mean of 3,906 miles. Nearly half (46.4%) of the riders reported riding fewer than 3,000 miles. One out of four (25.9%) riders reported riding 5,000 miles or more.

Motorcyclists reported having anywhere from 0 to 65 years of experience riding motorcycles on the street with a mean of 18.04 years. One out of four (28.4%) riders has 0 to 5 years experience. More than one out of three (35.3%) riders are returning riders. Returning riders reported riding anywhere from 1 to 40 years since returning to motorcycling with a mean of 6.41 years. A majority of returning riders took up motorcycle riding again recently; three out of five (59.6%) have been riding 5 years or less since returning to riding.

Twice as many riders reported wearing a helmet all or most of the time than riders reporting they wear a helmet never or rarely: six out of ten riders (59.1%) wear a helmet either "most of the time" or "all of the time" when they ride compared with three out of ten (30.4%) riders that "never" or "rarely" wear helmets when they ride. Of those who at least "rarely" wear a helmet, nearly half (49.3%) wear a full-faced helmet.

One out of four riders (25.6%) that at least "rarely" wear a helmet, wear a white, solid bright, or multi-colored bright helmet. More than one out of four (26.8%) riders have reflective materials on the helmet they wear most often.

Six out of ten riders (59.7%) wear protective upper-body clothing "most of the time" or "all the time". One out of ten (12.5%) riders that at least "rarely" wears protective upper-body gear wears white, solid bright, or multi-colored bright protective upper-body gear. More than six out of ten (63.9%) riders "rarely" or "never" wear protective lower-body clothing when riding. Three out of four riders (74.4%) "never" or "rarely" wear riding gear with reflective materials. Nine out of ten riders (91.1%) "never" wear a fluorescent vest while riding their motorcycles.

Nearly one-half (47.2%) of riders in Minnesota have a high visibility feature or modification to increase conspicuity (i.e. make a ride more visible to other drivers) on their motorcycle. Of riders with features or modifications, fewer than one out of five (16.4%) have an aftermarket horn. Of the riders with features or modifications, six out of ten (61.0%) have auxiliary driving lights. One out of five (20.8%) riders with features or modifications has a headlight modulator.

Of the riders with features or modifications, nearly one-half (46.8%) have position (marker) lights on their motorcycles. Of the riders with features or modifications, nearly two out of five (36.4%) have reflective tape or reflective stickers on their motorcycles. Of the riders with features or modifications, nearly one-third (31.5%) have taillight modulators on their motorcycles.

More than two out of three riders (67.7%) believe other drivers' inattention or driving while distracted is the greatest risk posed to riders by other motorists. One out of four riders (25.2%) believes reckless riding and/or speeding is the greatest risk motorcycle riders pose to their own safety. One out of five riders believes that lack of riding skills/training or rider inexperience (20.6% and 19.9% respectively) is the greatest risk motorcycle riders pose to their own safety.

Nearly one out of three (31.4%) riders believes the best way to reach riders with safety messages is through television ads. Nearly one out of five (17.2%) riders believes the best way to reach riders with messages is through outdoor and/or billboard ads.

References

1. *Minnesota Vehicle Registration Database*. Driver and Vehicle Services Division, Minnesota Department of Public Safety. Accessed December, 2007.
2. Dillman, D.A. (2000). *Mail and internet surveys: The tailored design method* (2nd ed.). New York: John Wiley & Sons, Inc.
3. SPSS Inc. (2002). *SPSS Base 14.0 for Windows*. SPSS Inc., Chicago IL.
4. *GraphPad QuickCalcs: Online Calculators for Scientists*.
<http://graphpad.com/quickcalcs/index.cfm> Accessed July 28, 2008.

Regions and Counties

