Motorcyclists' Attitudes on Using High-Visibility Gear To Improve Conspicuity

A Study Conducted Under NCREP — The National Cooperative Research and Evaluation Program

Findings From A Focus Group Study

U.S. Department of Transportation
National Highway Traffic Safety Administration

GHSA Governors Highway Safety Association
The States' Voice on Highway Safety

NHTSA

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16. Abstract

In its Moving Ahead for Progress in the 21st Century (MAP-21) Act, Congress directed NHTSA to establish a cooperative program — the National Cooperative Research and Evaluation Program (NCREP) — to conduct research and evaluations of State highway safety countermeasures. NCREP was continued in the Fixing America's Surface Transportation (FAST) Act. This program is administered by NHTSA and managed jointly by NHTSA and the Governors Highway Safety Association (GHSA). Each year, the States (through GHSA) identify potential highway safety research or evaluation topics they believe are important for informing State policy, planning, and programmatic activities. One such topic identified by GHSA, the reasons why motorcyclists use or do not use high-visibility gear, formed the basis for this project. Prior research on multi-vehicle motorcycle crashes suggests that difficulty detecting motorcycles is a relevant factor. A potential countermeasure to this phenomenon is for a motorcycle rider to wear high-visibility gear, especially at night or in low-light conditions. Yet, many riders do not wear high-visibility gear. This report describes a study that explored why riders choose, or do not choose, to wear high-visibility gear. Eighteen focus groups of 137 riders in Rockville, Maryland; Los Angeles, California; Austin, Texas; and Ann Arbor, Michigan, discussed their attitudes, beliefs and preferences regarding high-visibility gear. As much as possible, the groups consisted of riders of the same gender and who ride the same motorcycle type (cruiser, touring motorcycle, or sport motorcycle). Findings revealed that a minority of participants regularly wear high-visibility gear, and most of these cited a history of being in a crash or knowing others who had been in crashes with other vehicles as the reason for using high-visibility gear. Primary reasons for not wearing high-visibility apparel were objections to its appearance and the belief that it does not fit with their riding culture. Participants indicated that, to increase its acceptance among motorcyclists, the comfort and look of high-visibility gear must improve.

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1 EXECUTIVE SUMMARY

Motorcycle crashes that result from a right-of-way violation committed by another vehicle that had crossed into the path of the motorcycle are often attributed to the other driver not seeing the motorcycle. A potential countermeasure for this scenario is to encourage the use of high-visibility motorcycle gear to increase the conspicuity of the rider. The effectiveness of this countermeasure depends on the acceptance and willingness of motorcycle riders to use high-visibility gear. Thus, it is important to understand motorcyclists' attitudes toward high-visibility gear and beliefs about the ability of high-visibility gear to increase conspicuity. It is also important to assess whether motorcyclists believe conspicuity influences safety.

This report describes a study that explored the reasons why motorcyclists choose, or do not choose, to wear high-visibility gear. The findings can support State and Federal efforts to encourage motorcyclists to use high-visibility gear as a safety strategy.

National Cooperative Research and Evaluation Program

NHTSA's mission is to save lives, prevent injuries, and reduce economic costs due to traffic crashes, through education, research, safety standards, and enforcement activity. In the Moving Ahead for Progress in the 21st Century (MAP-21) Act, Congress directed NHTSA to establish a cooperative program — the National Cooperative Research and Evaluation Program (NCREP) — to conduct research and evaluations of State highway safety countermeasures. NCREP was continued in the Fixing America's Surface Transportation (FAST) Act. Each year, the States (through the Governors Highway Safety Association, GHSA) identify potential highway safety research or evaluation topics they believe are important for informing State policy, planning, and programmatic activities. One such topic identified by GHSA, why motorcyclists use or do not use high-visibility gear to improve conspicuity, forms the basis for this project, reflecting the high level of interest by the States.

Personal Protective Equipment

Motorcycle gear in this report refers to both personal protective equipment (PPE) (jackets, pants, boots, gloves, helmets) and apparel (e.g., street clothes) that motorcyclists wear when riding. Gear varies by the type of material, color and styling, as well as high-visibility properties. High-visibility materials are intended to be highly conspicuous, that is, to increase the visibility of the material and make it clearly discernable from its surroundings. These materials include retroreflective material, which returns a high proportion of the light rays received in the direction from which it came; and fluorescent material, which emits optical radiation at wavelengths longer than those it absorbed, appearing much brighter than non-fluorescent materials of the same color due to their luminescence, that is, they absorb short wavelength light and emit light at longer wavelengths. High-visibility colors in the context of motorcycle riding and highway safety are fluorescent yellow-green, fluorescent orange-red, fluorescent red, and white.[1] In some of the focus group discussions, participants also mentioned other bright colors such as "neon" blue, bright pink, and purple that they said would enhance conspicuity.

[1] The American National Standards Institute standard for high-visibility apparel and accessories (ANSI/ISEA 107-2015) specifies three colors (fluorescent yellow-green, fluorescent orange-red, and fluorescent red) for high visibility.

The study followed a qualitative, focus group approach to identifying motivations and barriers to acceptance and use of high-visibility gear. The study consisted of 18 focus groups conducted in Los Angeles, California; Austin, Texas; Ann Arbor, Michigan; and Rockville, Maryland with local recruits from those areas. The locations were chosen for their relatively high proportion of motorcycle riders, as indicated by motorcycle registrations and crash statistics, as well as for their range of climate, traffic conditions, and State laws on helmet use and lane-splitting (riding a motorcycle between lanes of traffic).

The participants were men and women who were active motorcycle riders or motorcycle passengers, and who indicated they rode motorcycles at least once a week. The research plan called for participants to be grouped by gender and motorcycle type ridden (cruisers, touring, sport, scooter) in each location. However, recruitment difficulties led to a low proportion of female riders in all locations. The result was that the groups of women riders included riders of any motorcycle type. Likewise, recruiting men who ride primarily as passengers was not successful, resulting in the passenger groups being all women, who rode any type of motorcycle. The scooter groups included men and women. The result was the following set of focus groups:

- Four groups of women riders, of any motorcycle type (n=34);
- One group of women who ride primarily as passengers (any motorcycle type) (n=5);
- Four groups of men who ride cruisers (n=27);
- Four groups of men who ride touring motorcycles (n=33);
- Four groups of men who ride sport motorcycles (n=31); and
- One group of men and women who ride scooters (n=7).

At the start of each focus group, the participants were asked to complete three short questionnaires on their gear, the factors they consider when choosing gear before a trip, and the factors they consider when purchasing new gear. The questionnaires served to "break the ice" and introduce the topic of motorcycle gear. The moderator then led a discussion on the types of gear, the riders' gear use and preferences, and gear use and safety. To support the discussion with specific examples of different types of gear, the moderator showed pictures of gear on a large screen in the room, and the moderator and assistants also passed samples of high-visibility gear around the room for participants to examine up close.

The following research questions guided the analysis of the questionnaire responses and the focus group discussions.

To what extent is conspicuity (relative to other factors) considered when selecting gear?
One item in a questionnaire asked participants to rank the importance of 21 factors they might consider when purchasing gear. The factor "increased visibility" ranked number 6. The 5 most important factors in order were comfort, durability, crash protection, weather resistance, and DOT certification.[2] The factors rated as least important were brand/logo; "someone else likes the way I look in it;" and, it matches the gear of another person/people in my riding group.

[2] For a motorcycle helmet to be DOT-certified, it must meet Federal Motor Vehicle Safety Standard 218, which defines minimum levels of performance in the event of a crash. A DOT-certified helmet is marked with a sticker on the back of the helmet.

Why do motorcycle riders choose to wear/not wear high-visibility gear?
The primary reason some participants wear high-visibility gear is to be seen by drivers. Repeatedly, in every group, participants said that drivers do not look for motorcycles and are frequently distracted by cell phones. Some participants who wear high-visibility gear do so because of a personal experience of being in a crash or knowing friends who experienced serious injury-producing or fatal crashes. The participants who wear high-visibility gear generally believe that it improves their safety.

Motorcycle riders who would *consider* wearing high-visibility gear indicated they would wear it selectively, perhaps in conditions they perceived as riskier, such as riding at night, in poor weather; when riding for a long distance; riding on a congested highway; or when "lane splitting" through dense traffic.

Most riders indicated that they do not wear high-visibility gear. Several reasons were mentioned, with the most important reason being that they do not like the way it looks. Many participants said they do not like the yellow color of high-visibility gear, and a few said that other high-visibility colors such as orange, bright blue, purple, or pink would be more acceptable. Participants said that the appearance of high-visibility gear is a problem because it does not fit in with the look of motorcyclists who ride their type of motorcycle. Some riders said they do not wear high-visibility gear because of the belief that it will not make any difference for their personal safety. Furthermore, they indicated that their skill as riders precludes the need to wear high-visibility gear. Other riders noted that they use lighting enhancements on their motorcycles already, and that high-visibility apparel would not increase their conspicuity. This belief was expressed particularly by owners of large touring motorcycles, who said the windscreen and other parts of the bike would substantially block the view of the rider (and presumably any effect of high-visibility gear worn).

Are certain types of motorcycle riders (such as sport bike, cruiser, touring, scooter, or female riders) more inclined to wear high-visibility gear than other riders?
Of all the focus groups, two seemed most inclined to accept high-visibility gear: women riders and scooter riders. Among the all-men groups, cruiser riders seemed less inclined than sport and touring riders to accept high-visibility apparel. However, several cruiser riders were open to the idea of adding retroreflective elements to the designs of their jackets and other gear to increase their conspicuity at night.

What would motivate these motorcycle riders to wear high-visibility gear?
The participants gave suggestions for increasing the likelihood that motorcyclists would use high-visibility gear. The more popular suggestions were the following.

- Create high-visibility designs that are more attractive and appealing to motorcyclists than existing designs that use bright high-visibility color to cover all or most of the visible area on a piece of gear.
- Persuade major motorcycle manufacturers and equipment makers to incorporate high-visibility elements universally into every piece of their branded gear, so that it becomes the norm.

- Advertise on television, roadside billboards, Internet sites, and podcasts with content that demonstrates the benefits of high-visibility apparel, and illustrate benefits of high-visibility apparel visually through side-by-side comparisons or through statistics that prove safety benefits. There is a need for messaging to make a convincing case about the safety benefits.
- Provide financial incentives, perhaps through a discount on motorcycle insurance.
- Start small, to gradually gain riders' acceptance by encouraging use of high-visibility gear at first for low-light conditions, such as in bad weather or at night, and by promoting retroreflective materials as these seem more acceptable than bright, high-visibility colors.

From the motorcycle riders' perspective, how can high-visibility gear be improved?
Focus group participants wanted improvements in the visual design of high-visibility apparel. For example, they wanted to be able to choose high-visibility colors other than the bright yellow/green high-visibility color that is often used. Bright orange was acceptable to some riders.

Although participants wanted less high-visibility color in the design of their gear, they were less concerned about reducing the area of retroreflective material in apparel designs because during the daytime these materials can look gray, which was more acceptable. Some participants suggested incorporating retroreflective material into interesting design elements, such as brand logos, images of flames, skulls, etc.

Participants said that more attention should be given to the optimal placement of high-visibility colors and retroreflective material to make it more effective. Some suggested moving high-visibility colors to the outer sides of the arms and legs, and to higher locations on jackets. They said that consideration should be given to differences in riding posture for different motorcycle types to be sure that the high-visibility elements are on parts of the body that can be seen by drivers.

Most of the female participants expressed concern about the difficulty in finding high-visibility and other riding gear that fit them properly and comfortably. They suggested that high-visibility gear could be improved in both the fit and the style so that it appealed more to women.

The discussion section includes researchers' comments about study limitations, lessons learned, implications of findings for safety policy and State-sponsored safety programs, and suggestions for future research.

2 INTRODUCTION

Right-of-way violation crashes, in which a vehicle crosses or merges into the lane of an approaching motorcycle, can result from the other driver not seeing the motorcycle (Clarke, Ward, Bartle, & Truman, 2007). These crash scenarios are sometimes called "conspicuity-related crashes" to suggest problems with the detectability of the motorcycle as a causal factor. A possible countermeasure for these crashes may be to increase the conspicuity of the motorcycle and rider. Various conspicuity enhancements have been shown to reduce the number of unsafe gaps accepted by drivers positioned to turn left in front of an oncoming motorcycle (Olson, Halstead-Nussloch, & Sivak, 1981; Jenness et al., 2011), and various conspicuity enhancements, including high-visibility apparel, have been associated with lower crash rates. For example, Wells et al., (2004) conducted a case-control study of crash-related injury in New Zealand and found that motorcyclists wearing any reflective or fluorescent clothing had a 37 percent lower crash risk than other motorcyclists. However, some research studies on the effects of increasing motorcycle conspicuity point to complex interaction effects, such as interaction between the brightness of rider's apparel and the brightness of the background scene (Hole, Tyrrell, & Langham, 1996; Gershon, Ben-Asher, & Shinar, 2012).

This project was motivated by the assumption that, in general, conspicuity enhancements to motorcyclists' apparel (including helmets) may help to reduce conspicuity-related crashes, and therefore, encouraging the use of high-visibility apparel will have safety benefits. In the United States, some riders regularly wear high-conspicuity apparel, but most do not. A recent rider survey in Oregon found that 83 percent of respondents reported that they rarely or never wear fluorescent yellow, green, red, or orange reflective vests or jackets when riding (Oregon Department of Transportation, 2012). Similarly, a recent Texas survey found that only approximately 17 to 24 percent of riders reported wearing any of the following: a white or brightly-colored helmet, a brightly colored jacket, or a fluorescent/reflective safety vest (Higgins, 2012).

One barrier for encouraging the use of high-visibility apparel is finding effective ways to convince motorcyclists to change their behavior. However, motorcycle riders are a diverse population of road users, which makes it difficult to design targeted safety messaging to encourage behavioral change. For example, one study identified seven distinct segments of riders within the motorcycle population in the United Kingdom (Christmas, Young, Cookson, & Cuerden, 2009).

For the U.S. population of motorcyclists, there is also sociological literature that defines different rider subcultures based on type of motorcycle ridden, such as the generally safety conscious BMW riders (Austin, 2009) versus the "outlaw" or "one percenters" (Quinn & Forsyth, 2009). In an essay on the merits of considering motorcycles as art, Steven Thompson argues that the aesthetics of a motorcycle cannot be separated from its rider. "[The] matter of 'lookin' good' on any given bike is why street riders pay so much attention to (and so much money for) the 'right' riding gear, and why that gear changes according to the kind of bike they're riding" (Thompson, 2000). Thus, for motorcycle owners whose personal identities are strongly connected to their motorcycles and to riding, group affiliations and motorcycle choice may have a strong influence on apparel choices. For this reason, the project team decided to conduct focus groups by

motorcycle type. However, not all motorcyclists' decisions about riding apparel are primarily influenced by group affiliation. Other influences on apparel choices may include cost, physical comfort, perceptions of safety benefits versus detriments, concerns about personal appearance, influence of people who first taught the motorcyclist how to ride, and lack of exposure to, or general knowledge about high-visibility clothing. These topics were directly addressed in the focus group sessions and through quantitative surveys.

2.1 STUDY OBJECTIVES

Reducing the number of motorcyclists killed or severely injured in motor vehicle traffic crashes is a major concern for NHTSA, State Highway Safety Offices, and motorcycle safety advocates. This study was conducted to obtain information supportive of Federal and State efforts to reduce motorcycle crashes.

National Cooperative Research and Evaluation Program
NHTSA's mission is to save lives, prevent injuries, and reduce economic costs due to traffic crashes, through education, research, safety standards, and enforcement activity. In the MAP-21 Act, Congress directed NHTSA to establish a cooperative program, NCREP, to conduct research and evaluations of State highway safety countermeasures. NCREP was continued in the FAST Act, an annual $2.5 million program administered by NHTSA and managed jointly by NHTSA and GHSA. Each year, the States (through GHSA) identify potential highway safety research or evaluation topics they believe are important for informing State policy, planning, and programmatic activities. In this case, due to the high level of State interest, GHSA identified a need to understand why motorcyclists may or may not use high-visibility gear to increase conspicuity.

The study followed a qualitative methodology that used focus groups of motorcycle riders. The groups discussed their attitudes, beliefs, and preferences for the color and material of riding gear. The objectives of the project were to:

- Increase understanding of the motorcyclist perspective on conspicuity, safety, and the value of using high-visibility gear, including any misinformation regarding gear and how it relates to comfort and safety;
- Provide insight on effective ways to encourage the use of high-visibility gear to increase conspicuity; and
- Obtain information that is critical regarding overall rider acceptance of this type of gear.

This research will support States in their efforts to encourage motorcyclists to use high-visibility riding gear as a safety strategy and addresses the research questions raised under the NCREP.

2.2 RESEARCH QUESTIONS

Research questions were developed to guide the design of the project and identify the topics to explore in the focus groups. These topics included gear and apparel used by the participants, reasons for their choices, factors considered when purchasing or using these items, attitudes toward high-visibility gear, reasons for not wearing high-visibility gear, and suggestions for how

to motivate riders to wear high-visibility gear. Specifically, the study aimed to address the following questions.

- To what extent is conspicuity (relative to other factors) considered when selecting gear?
- Why do motorcycle riders choose to wear or not wear high-visibility gear?
- Are certain types of motorcycle riders (e.g., riders of sport motorcycles, cruisers, touring, scooters, or women riders) more inclined to use high-visibility gear?
- What would motivate motorcycle riders to use high-visibility gear?
- From the motorcycle riders' perspective, how can high-visibility gear be improved?

3 METHODOLOGY

3.1 STUDY DESIGN

The motorcycle types discussed in this study are the types as defined by the Highway Loss Data Institute (Teoh & Campbell, 2010). The motorcycle types included in this study are depicted in Figure 1. The participants were grouped by the type of motorcycle they ride or, if they ride more than one type, the one they ride most often (except for women riders, who were grouped together regardless of the types of motorcycles they ride). The cruiser groups included riders of cruisers, choppers, and standard motorcycles. The touring groups included riders of touring, and sport touring motorcycles. The sport groups included riders of sport, unclad sport, and super sport motorcycles. Scooter riders had their own group. Riders who primarily use off-road or dual-purpose motorcycles were not included in this study.

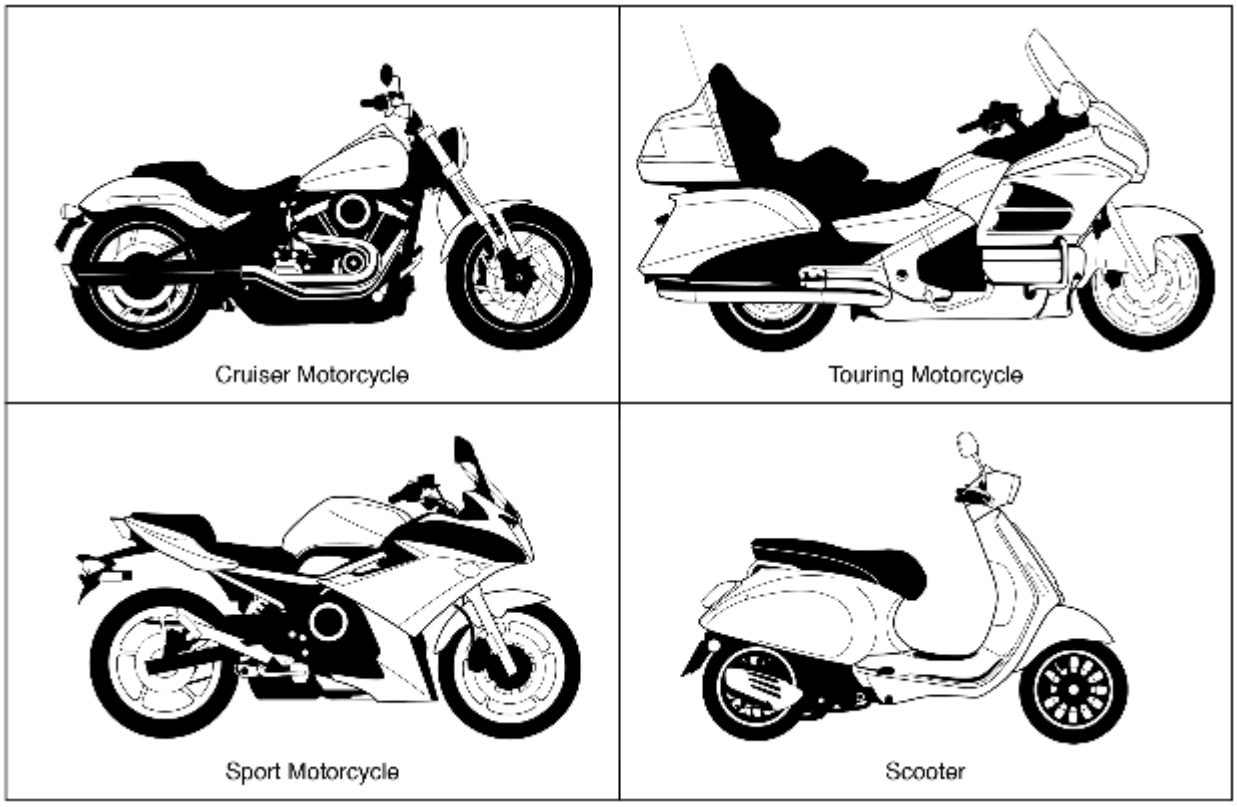

Figure 1. Motorcycle types included in the study

There were 18 focus groups, defined primarily by the motorcyclist's gender and the type of motorcycle ridden most frequently. It was difficult to meet the recruitment goals for women riders by motorcycle types (e.g., sport motorcycles), so women riders of various types of motorcycles were grouped together. The result was the following set of focus groups: 4 groups of cruiser operators (men), 4 groups of sport motorcycle operators (men), 4 groups of touring motorcycle operators (men), 4 groups of mixed motorcycle-type operators (women), 1 group of

mixed motorcycle-type passengers (women who primarily ride as passengers on motorcycles), and 1 group of scooter operators (men and women).

Information collection for this study was approved by the Office of Management and Budget (OMB Control Number: 2127-0682) and Westat's Institutional Review Board.

3.2 STUDY LOCATIONS

The study consisted of 18 focus groups conducted in one State of each of four national geographic areas (Maryland in the east, Texas in the south, California in the west, and Michigan in the north), with a total of 137 people. The basis for selecting the locations was to obtain representation of motorcyclists from different environments. These locations differ in climate, riding conditions, State helmet laws, and length of riding seasons. Table 1 lists additional details on the locations.

Table 1. Focus group locations and types

Location/ Key Characteristics	Focus Group Number/ Type
Rockville, Maryland • Universal helmet law • East Coast representation	1. Men riders: Cruiser/standard 2. Men riders: Touring 3. Men riders: Sport 4. Women riders: Mixed types 5. Women riders: Mixed motorcycle types
Austin, Texas • Partial helmet law • Long riding season • South representation	6. Men riders: Cruiser/standard 7. Men riders: Touring group 8. Men riders: Sport group 9. Women riders: Mixed motorcycle types
Los Angeles, California • Universal helmet law • Allows lane splitting • West Coast representation	10. Men riders: Cruiser/standard 11. Men riders: Touring 12. Men riders: Sport 13. Women riders: Mixed motorcycle types 14. Men and women riders: Scooter
Ann Arbor, Michigan • Partial helmet law • Colder climate riding • Midwest representation	15. Men riders: Cruiser/standard 16. Men riders: Touring 17. Men riders: Sport 18. Women riders: Mixed motorcycle types

3.3 RECRUITMENT AND SCREENING

Participants were recruited with Craigslist advertisements and information posted in local motorcycle riding groups, local motorcycle dealerships, and motorcycle apparel stores. The ads provided brief descriptions of the study and contact information. The ads noted that the focus groups of motorcycle riders and/or passengers were being formed to discuss motorcycle riding; ads did not reveal the interest in the high-visibility issue. Participants were paid between $75 and

$125, depending on the difficulty of recruiting and local norms for focus group participation. Within each group, participants received the same incentive amount. Recruitment for the focus groups in Rockville included a notice on the contractor intranet page as well as word-of-mouth. (Employees of Westat's Center for Transportation, Technology and Safety Research were not permitted to participate.)

Despite these efforts, there were low recruitment numbers in Austin and Ann Arbor. For these locations, the teams worked with local recruitment agencies to supplement recruiting efforts. In addition, a recruitment agency in Los Angeles identified additional touring motorcyclists.

Prospective participants completed screener questionnaires over the phone on basic information such as age, gender, motorcycle riding habits, type of motorcycle owned, and motorcycle license or endorsement status. Participants were not required to possess motorcycle licenses or endorsements, but were required to be "regular riders," classified as at least once a week during the riding season. Another requirement was that participants had to ride motorcycles as operators, as opposed to passengers (except in the passengers-only focus group).

Once a pool of possible participants was established and the focus group dates and times were set, recruiters contacted participants for scheduling. Eight to 10 people were scheduled for each group. Once confirmed, recruiters sent confirmation e-mails and reminder calls on the day of the scheduled focus group sessions.

3.4 CONDUCTING THE GROUPS

A focus group moderator and a note-taker managed each group. Upon arrival to the session, each participant reviewed and signed a consent form. At the start of the focus group, the moderator turned on the digital audio recorder to record the discussion. The moderator explained basic ground rules for the focus group and encouraged everyone to contribute and respect the privacy of others. After a round of introductions, the moderator led the group through the discussion, following the structure of the moderator guide (see Appendix A). To avoid biasing the participants' opinions, the moderator guide used a "funnel-shaped" question path, in which the moderator would ask broad questions about motorcycle apparel before moving the discussion to the issues of conspicuity while riding, attitudes and opinions of high-visibility apparel, and finally, barriers to using high-visibility apparel. Near the end of the session, the moderator questioned the group on possible ways motorcycle riders could be encouraged or incentivized to wear high-visibility apparel and gear.

To facilitate conversation in the group, prime participants on the topic of gear, and obtain specific information, the moderator asked participants to fill out three short questionnaires on the riding gear they typically wear, trip factors that influence their choice of gear, and factors they consider when buying new gear. The results of these questionnaires are presented in the Appendices B, C, and D. The questionnaires are provided in Appendices E, F, and G.

The moderator introduced the concept of high-visibility gear by showing images of high-visibility gear in presentation slides. During the sessions, it became apparent that all riders were aware of high-visibility gear. To prompt further discussion of high-visibility gear, the moderator

distributed different types of gear, including jackets and pants, with high-visibility characteristics. Riders could feel and try on the gear, which allowed them to experience the gear first-hand and possibly evoke greater insight and more informed comments and critiques. Each item had a large price tag attached to indicate the retail price of the item. The items are shown in Figure 2.

Figure 2. High-visibility gear examples presented to participants. Left to right. Top row: women's jacket ($146), fitted vest ($89), riding pants ($30). Middle row: rain jacket and rain pants ($50), men's jacket ($50). Bottom row: basic vest ($17), suspenders and armbands ($17), reflective tape ($12)

Before revealing the sample items, the moderator explained the items were examples only and may not be representative of the quality, cut, or fit that the participants are accustomed to with their own gear. Additionally, the moderator asked the group to focus on the style and color, and consider whether the use of the high-visibility colors and reflective components would add to their safety. The moderator also encouraged them to brainstorm ways the items could be improved with respect to enhancing conspicuity. At the end of the session, each participant received payment to compensate them for their time.

3.5 DATA REDUCTION AND ANALYSIS

Researchers followed a systematic protocol for reducing and analyzing the study data. The note-taker and the moderator reviewed their notes to confirm and correct key points and flag issues for further review. They discussed and summarized the main points and insights from the discussion and extracted themes from the discussions in each group. Later, the audio recordings were reviewed to confirm the findings and supplement notes taken during the session. Direct quotes gathered during a group session were transcribed verbatim by reviewing the recordings.

After all focus groups were conducted at each location, project staff reviewed together their individual summaries and interpretations and applied the data to answer the research questions.

Written responses to the questionnaires were manually coded. The results of the questionnaires are provided in Appendices B, C, and D, and discussed in the results section. To compare the results by "rider types," the number of participants who chose each item was converted to a percentage of all participants of the same rider type. Note that female passengers and scooter riders had fewer participants than the other rider types.

To analyze the factors that participants considered when purchasing new gear, individual responses to Form C (Appendix G) were quantified (Appendix D). Responses on the 5-point importance scale from "not important" to "very important" were converted to the values 1 to 5. These values were then averaged across participants for each item, and the items were ranked based on these averages. The factors with the higher rankings were considered the most important.

4 RESULTS

The results section presents an overview of participant characteristics, results from the questionnaires, and summaries of the focus group discussions, by motorcycle type. The results section also addresses the research questions and highlights differences by location or group.

4.1 CHARACTERISTICS OF PARTICIPANTS

A total of 137 people participated in the focus groups. In the screening forms, participants reported their age range (not exact age) and the number of years of experience riding motorcycles. Table 2 shows the data from the screening forms by age group and type of motorcycle they ride most frequently. In general, the sport motorcycle riders were younger and the touring motorcycle riders were older than the riders in the other groups.

Table 2. Age distribution of participants by motorcycle rider type

Age (years)	18-30	31-55	56+
Cruiser (N=27)	4	15	8
Sport (N=31)	9	22	0
Touring (N-33)	0	16	17
Scooter (N=7)	0	7	0
Women Riders (N=34)	7	24	3
Women Passengers (N=5)	0	5	0

Table 3 shows the average length of riding experience for each rider type. Riding experience included all types of motorcycles, not just the participant's current type of motorcycle or scooter. Cruiser and touring participants, on average, had more years of riding experience than did participants in the sport, scooter, and female rider groups. This difference is consistent with differences in age distributions among groups.

Table 3. Average number of years riding motorcycles by motorcycle rider type

Average Number of Years Riding	
Cruiser	21.3
Sport	14.7
Touring	26.5
Scooter	7.6
Female Riders	11.6
Female Passengers	10.2

Table 4 shows, for each rider type, self-reported frequency of the number of riding days per week. In cases where participants do not ride throughout the year, they were asked to consider only their own riding season when reporting these estimates.

Table 4. Number of riding days per week by motorcycle rider type

	Less Than 1 Day	1-2 Days	3-4 Days	5 + Days
Cruiser (N= 27)	0	7	12	8
Sport (N= 31)	0	4	18	9
Touring (N= 33)	1	8	16	9
Scooter (N= 7)	0	0	2	5
Female Riders (N= 34)	1	8	18	7
Female Passengers (N= 5)	0	2	3	0

4.2 RESULTS FROM THE QUESTIONNAIRES AND DISCUSSIONS BY FOCUS GROUP RIDER TYPE

Participants provided information about their habits, preferences, attitudes, and beliefs about riding gear on the three questionnaires and during the group discussions. In the section below, results from the questionnaires and summaries of the group discussions are presented for each type of group. Following that is a summary of the overall results.

4.2.1 Cruiser Riders: Men

There were four focus groups of men who primarily rode cruisers or standard type motorcycles, totaling 27 participants. The focus groups were conducted in Maryland, California, Texas, and Michigan.

Typical Riding Gear

Although there were a few exceptions, most cruiser riders indicated a preference for wearing minimal gear. Full-faced helmets with shields were popular, and a few people mentioned that acceptance of full-faced helmets has increased over the years. However, several people in the cruiser rider groups wear the half-shell "beanie" helmets, a style of helmet that was particularly popular among the riders in Michigan. More so than the riders in other locations, cruiser riders in Michigan indicated they do not wear helmets every time they ride. However, overall, only 7.4 percent of cruiser riders indicated that they wear their helmet "sometimes." The one or two cruiser riders who did like to "gear up" with armor were older (over 55). In addition, cruiser riders indicated they usually or always wear eye protection (78%) and boots (63%).

Leather was the material of choice among cruiser riders, with 40 percent indicating they wear leather jackets usually or always. Most indicated that leather gear was more durable, more flexible, and a higher quality than textile armored alternatives. In addition, many believed that armor and textile were associated with sport bike riders. Denim pants were the pants of choice when riding a cruiser (with 78% usually or always wearing denim), and one rider said that jeans were just as good as expensive armored pants. However, most cruiser riders acknowledged the limitations of denim, with one participant noting that his jeans gave him only "three feet of protection" (sliding distance) in the event of a crash.

Cruiser riders indicated that when they wear safety gear, they prefer clothes that could pass as street clothes once they reach their destination. Kevlar jeans were popular, with three people mentioning that they provide an element of safety without sacrificing style. Another participant wore "firehose" pants, made of a durable cotton canvas material, that look like khakis when riding. The rider said that the fabric has "more of a skid plane than denim" and protected him when he crashed his motorcycle. Only 4 percent of cruiser riders indicated that they usually or always wear high-visibility gear.

Trip Factors' Effect on Gear Choice

For most riders in the focus groups, weather was the key factor when choosing what to wear on a trip: 88.9 percent listed it as one of the top three factors. In Los Angeles and Austin, cruiser riders noted that the temperature can change greatly throughout the day, due to proximity to the ocean or desert. Ann Arbor and Rockville cruiser riders were more likely to change their gear choice by the seasons. Several cruiser riders said that they would not ride in adverse weather conditions, whether it be cold, heat, or rain. As one participant from Rockville put it, "I'm a fair-weather biker, and I'm not afraid to admit it." Rain is so rare in Los Angeles that most riders said they would not ride if it were raining. Most cruiser riders also included length of ride (81.5%) and time of day (77.8%) as factors.

Traffic conditions were important to a smaller proportion (26%) of cruiser riders. Two cruiser riders said they wear more "flashy" or reflective gear when lane-splitting or in the morning rush hour. One rider who wears reflective gear during his morning commute explained, "That early in the morning, I'm not going to take the chance," implying that conditions are low-light or that visibility is reduced if the sun has not risen.

A few people noted that they only have one set of gear, precluding the need to consider conditions when choosing gear, as they wear the same thing every ride. Conversely, one rider stated that he wears "all gear, all the time" no matter the conditions. When asked why, he responded that gear is "cheaper than skin."

One rider added "destination" on the questionnaire as a factor when choosing gear. He explained that if he were going to class, he might just wear his helmet and ride without other safety gear. Two people who wrote "type of road" as a factor, said they would wear full gear for "canyon riding" because of the curves in the road and the more complicated maneuvers required.

Purchasing Factors

Most cruiser riders did not regularly buy motorcycle gear or apparel, but will buy something new after an item is worn out or ripped. The participants noted that gloves were the item that requires replacing most frequently; most of the cruiser riders said they replace gloves every 6 months to a year. Boots were also often regularly replaced. Several cruiser riders mentioned they would not replace a helmet unless it was dropped or in a crash. However, one person brought up the fact that a helmet can deteriorate over time.

In every group, cruiser riders pointed out that quality motorcycle gear is extremely expensive and, therefore, they do not buy it frequently. However, most felt that the expense was worth it for the quality and durability offered. Despite this, 62.9 percent of cruiser riders listed cost as

important or very important when buying new gear. At least two people mentioned during the discussions that their leather jacket was over 20 years old, which seemed to be a point of pride for them. One rider said, "If you buy good leather, you can pass it down to your kids," to which several people in the group agreed. One person mentioned that he buys cheap items like T-shirts and sweatshirts a few times a year from the Harley-Davidson store.

"Comfort" was the most popular factor with 48 percent of participants listing it as one of their top three factors in making purchasing decisions. Two people said they would not wear an item if it were not comfortable, even if it meant sacrificing safety. For example, one cruiser rider talking about helmets said, "If it's not comfortable, I'm not going to wear it." Fitting well tied closely with comfort and was very important when choosing motorcycle gear. Several participants mentioned they like to try on an item before buying. Most cruiser riders preferred to buy gear from stores and at rallies. At least three people mentioned they sometimes try on an item at a store and then buy it cheaper online. In each group, cruiser riders stated that if they were not comfortable in the gear, and it did not fit correctly, their riding performance would suffer. As one person said, "Not being comfortable can throw your body off."

When the topic of style came up, several riders mentioned that they always wear black. For some riders, this was because they like the color black. However, at least three people wore black because they wanted to match the color of their motorcycles. One person mentioned that black often seemed to be the only option when buying something that matched the cruiser style.

Perception of Conspicuity as a Safety Issue

All riders in all four cruiser groups indicated that conspicuity was a concern while riding a motorcycle. However, most of the time, riders felt that crashes were due to car drivers' lack of attention to the roadway. Almost all riders thought that drivers are frequently distracted due to cell phone use. A few cruiser riders acknowledged that the size differential between motorcycles and cars contributes to distorted depth perception in drivers. A rider explained to the group that he has almost hit motorcycles when driving his car, saying, "Wow, I was just that guy that [riders] complain about."

Methods for combatting this lack of conspicuity varied across cruiser riders. Some took a defensive approach, such as never riding in a car's blind spot. One cruiser rider said that when he was taught to ride a motorcycle, the instructor told him to act as if he were invisible to car drivers. Other riders were taught to be aggressive and ride "5 miles per hour faster than everyone else." However, one group expressed the concern that this aggressive riding style gave motorcyclists a "bad name."

A common refrain heard in the cruiser groups was, "loud pipes save lives." When the topic of motorcycle conspicuity was brought up, most cruiser riders emphasized the importance of noise and lights as opposed to high-visibility gear. The most common modifications that cruiser riders said they made to be noticed were to modify their exhaust so it would emit a louder sound and to add light-emitting diode (LED) headlights. Several people in the cruiser groups said they regularly ride with the high beams on or flash their high beams to increase their visibility to other drivers. Other riders commented that they like the idea of wearing LED lights on their helmet or clothes, like those worn by bicyclists.

Use of High-Visibility Gear

Most cruiser riders did not regularly use high-visibility or reflective gear. Three to four riders had retroreflective elements on their jackets, but only two said they made the choice on purpose. One rider had a relatively pessimistic view, saying he bought reflective gear because, if he crashes, he does not want to "look like a speed bump" in the middle of the road.

Four cruiser riders said they had high-visibility or reflective gear, but they rarely, if ever, wore them. One rider bought a high-visibility vest to ride onto a military base, but ended up not using it. Three people said they do not wear the high-visibility apparel they bought because it looks "stupid."

Opinions on the effectiveness of high-visibility gear varied, although most felt wearing high-visibility gear and apparel would help improve safety somewhat. At the very least, as one rider put it, "It couldn't hurt." Another rider explained he chose retroreflective riding gloves to give him a split-second advantage in the event of an imminent collision. One rider (who did not wear high-visibility gear) said motorcycle riders should wear high-visibility apparel because it would catch drivers' attention, like a "diamond in a hand."

However, there were at least two or three riders in each group who were skeptical of the effectiveness of high-visibility gear in improving motorcycle rider conspicuity. Most of this skepticism seemed to arise from personal experience, when drivers appeared to be looking right at them, but almost hit them anyway. For example, one rider said, "There's something about a motorcycle that people just don't see … they are looking dead at me; they're still looking at me and they pull out." Another rider stated, "Personally, I think the only people that would notice you in those bright colors are other bikers." Other riders simply felt that high-visibility apparel would be too small from the perspective of the drivers to make much difference in terms of safety.

The most common reason riders gave as to why they (and other cruiser riders) do not wear high-visibility apparel was that it was not the right style. The "cruiser style" has a heavy emphasis on black and leather, neither of which lends well to bright, high-visibility apparel. One rider explained that there is a "cool factor" to riding a motorcycle, and that "everyone takes it back to the Hell's Angels days." Another rider did not want what he was wearing to be a distraction from his motorcycle, something that he paid a lot of money for and in which he takes a lot of pride.

Several cruiser riders thought high-visibility apparel better fit the sport bike aesthetic than the cruiser style. A few people also associated high-visibility with novice riders. In addition, about three people said younger riders would be more likely to choose high-visibility gear, either from a safety or style perspective. However, at least three people disagreed with this view and thought it was more likely for older riders to be more cautious, and therefore more inclined to wear high-visibility gear. Several cruiser riders thought willingness to wear high-visibility apparel was culture-dependent. For example, participants viewed BMW riders as more safety conscious than the general riding population.

Most riders said they personally would not wear high-visibility gear or apparel (that had bright yellow/green colors); however, almost all said they would wear retroreflective elements (that would be added to gear or apparel). Riders liked the subtlety of retroreflective materials, and that it could be incorporated into dark apparel, black jackets or helmets. Riders also liked the fact that it is only visible at night, when light is directed at it (such as from a car's headlights); participants perceived nighttime as the most crucial time to be seen. Two riders who only ride during the day said they did not need high-visibility gear or apparel because it was for nighttime riding. However, seven riders said they would consider wearing high-visibility gear in certain conditions, such as in rain, early in the morning or at night.

High-Visibility Gear Product Demonstration

Men's jacket

While most cruiser riders did not like the jacket, they acknowledged it would improve conspicuity. Three people said they might wear the jacket, but most thought it was "too neon" and did not like the color. One person commented that the jacket would not be helpful at night due to the lack of reflective strips.

Women's jacket

The consensus was that the women's jacket was more stylish and attractive than the men's jacket. Most liked how the jacket was predominantly black with yellow high-visibility accents. One person liked the contrast between the black and yellow, which he said would make it more visible on the road. A few people thought the jacket could use more reflective strips and two people suggested they would be more inclined to wear the jacket if the yellow accents were made of grey reflective material. One person commented the yellow would be good for daytime visibility, but the jacket needs more yellow to make it visible at night.

Fitted vest

Overall, cruiser riders strongly disliked the fitted vest. Most of these riders commented that it was overpriced, and three riders noted it lacked enough pockets to be functional. Several people said they would not wear it over their leather jackets, but appreciated how it could be folded up and stowed away more easily than a jacket could.

Plain vest

While no one particularly liked the look of the basic vest, most liked it more than the fitted vest. At $17, a few riders said it was a good price and several liked the pockets. Almost everyone agreed it would be very visible, and a few people mentioned that it could be easily folded up and fit into a pocket. One cruiser rider was considering buying something like it for safety during nighttime riding, which he does currently on "a wish and a prayer."

Armored pants

Everyone in the cruiser groups thought the pants were not the "cruiser style." Some said they were well suited for sport bike riders while others thought they were motocross[3] pants. In addition, some cruiser riders said the patches of yellow were poorly placed for visibility

[3] Motocross is a form of off-road motorcycle racing.

purposes. Another rider pointed out that it is hard to see a motorcycle rider's legs anyway, so the high-visibility component on the pants was useless.

Rain gear

About half the cruiser riders were open to the possibility of using high-visibility rain gear. When they ride in the rain, they seemed to be less concerned about fashion or style. They liked the rain gear because the high-visibility component served a specific purpose. Some cruiser riders said it could use more high-visibility color and reflective strips down the legs. A few people liked the orange color more than the yellow in the rest of the example gear items.

Suspenders and armbands

Reactions to the suspenders and armbands were mixed in the cruiser groups. Some said that the suspenders looked "goofy" and were worried that they would get twisted, but others liked the compact and tight fit. Cruiser riders in Ann Arbor were particularly opposed to the suspenders, thinking they would be made fun of if they wore them while riding. One person explained that he wants to feel and look good while riding and the suspenders would infringe on that feeling.

Reflective tape

The reflective tape was the most popular item demonstrated to the cruiser groups. One person thought it was "phenomenal" and another rider liked that it was "low-key." Several people liked the fact that the tape could be personalized with designs to make it stylish. When asked on which gear they would apply the tape, riders most frequently identified saddlebags and helmets; most riders said they would not put tape on the motorcycle itself.

How to Promote the Use of High-Visibility Gear

Participants in the cruiser rider sessions offered a variety of suggestions for promoting the use of high-visibility apparel and gear. Several people said manufacturers needed to make the designs more attractive and subtle for them to appeal to a wider range of riders. Two people mentioned they have custom-made jackets and suggested manufactures could put as much or as little high-visibility material into the jacket as individual customers wanted.

Other riders suggested that insurance companies could offer discounts on insurance if a motorcyclist wore high-visibility apparel. A few riders identified newsletters, motorcycle shops, and motorcycle magazines as good places to place advertisements and public service announcements for high-visibility apparel. Similarly, a few people wanted to see statistics illustrating the benefit of wearing high-visibility apparel.

A few riders suggested that cheap vests could be given away free at the Department of Motor Vehicles or during a motorcycle safety course, but others said they would not even wear free vests.

Another popular suggestion was to encourage the use of high-visibility gear among certain populations and during specific scenarios. For example, several people said the use of high-visibility apparel should be encouraged among young motorcycle riders, as they are less "set in their ways." Many cruiser riders also noted it would be a good idea to encourage riders to wear high-visibility gear at night or in adverse weather conditions, in other words, in low-light

conditions. Several people pointed out that they would be less self-conscious wearing bright colors during these situations.

4.2.2 Sport Motorcycle Riders: Men

Four focus groups were conducted with men who ride sport motorcycles, totaling 31 participants. The groups were conducted in Maryland, California, Texas, and Michigan.

Typical Riding Gear

In general, sport motorcycle riders in all locations seemed to wear more gear than did the other rider types. Several participants mentioned that they use gear because their style of riding requires it. In comparison to riders of other motorcycle types, sport motorcycle riders may, in general, ride faster, and therefore believe they need more protection. During the focus group conducted in Texas, one rider used the slang term "squid" to describe sport motorcycle riders who only wear helmets. Other members of the group were familiar with the term and said, "They are called squids because they are squishy," and have no protection other than their helmets. It was clear that riders in the group did not approve of this style of riding.

Sport motorcycle riders indicated that a helmet, gloves, boots, and a jacket are standard gear, and that additional gear may be used depending on the length or type of ride. Most participants (78%) in the questionnaire, even in the two non-universal-helmet-law States, indicated that they always wear helmets. Only three or four people out of all the sport motorcycle groups said they sometimes do not wear helmets if they are going on a short ride, for example to run an errand. About 28 percent of the group participants noted in the questionnaire that they always or usually wear armored jackets; a few said they prefer leather. Denim jackets are not commonly worn by this group, with only 4 percent indicating they always or usually wear denim jackets. One participant said, "It does not fit the sport bike style." However, 78 percent indicated in the questionnaire they wore denim jeans usually or always. When discussing typical riding gear, the topic of high visibility came up organically in three of the locations (California, Texas, and Michigan) because some of the participants wear high-visibility gear when riding. About 23 percent of sport motorcycle riders indicated in the questionnaires that they wear high-visibility gear sometimes, usually, or all the time.

Trip Factors' Effect on Gear Choice

Weather was consistently cited by sport motorcycle riders as one of the top factors when selecting gear. (All riders in this group marked it as a factor.) In fact, some of the other top factors, such as time of day and type of traffic, were sometimes associated with weather. For example, several participants said time of day was a factor because in the evenings it is cooler and the temperature change would impact their gear selection. Similarly, some riders said the likelihood that a trip would involve "sitting" in traffic when it was hot or sunny would influence their gear selection. One rider said, "Hot or cold, it does not matter; if you are unprepared you won't be comfortable, which will lead to distraction." In all locations, participants indicated that length of ride is also an important factor (81% of riders indicated they wear either additional gear or gear with more armor and protective components when engaging in a longer ride). Similarly, riders indicated they were more inclined to wear extra gear when riding on highways versus local roads, mostly because of the speed they intend to ride and the speed of other vehicles around them, with 84 percent of riders indicating that the type of road is a factor when choosing gear.

In each location, one or two sport motorcycle riders addressed visibility, specifically with respect to time of day or type of traffic, as an important factor in decision-making regarding selecting gear. These individuals indicated they wear high-visibility gear or gear with reflective components when riding at dusk, at night, or in heavy traffic. Several of these participants stated they want to increase their chances of being seen at these times.

Reasons of style and fashion were never mentioned outright as top factors when selecting gear, but later in the discussions it became apparent that these factors were important to most of the sport motorcycle riders across focus groups locations. In the Maryland session, riders mentioned that group riding and other social factors impact their gear selection decisions, explaining that some riding groups are very safety conscious and that "you would never show up without full gear because you would get an earful."

Purchasing Factors

In comparison to other riders, sport motorcycle riders seemed to purchase gear more frequently. Most people indicated they purchase new gear when their old gear wears out or if they were involved in a crash, with helmets and gloves cited as the two items replaced most frequently. Many sport motorcycle riders said they replace their gloves annually and their helmet every three to five years. Other items such as jackets and boots are replaced less frequently. Several riders indicated that some gear had never been replaced. One rider illustrated this by saying, "A good jacket could last a lifetime." Many riders also commented on the cost associated with what they considered to be good quality gear. Often the cost prohibited riders from purchasing duplicates of a certain piece of gear. This perspective is something to consider with respect to high-visibility gear because if the rider already owns a piece of gear, the rider may be less likely to purchase the same type of gear with high-visibility components since the cost would be unacceptable to the rider.

The top purchasing factors marked as either "very important" or "important" by sport motorcycle riders were crash protection (97%), durability (97%), and comfort (94%). As previously mentioned, the higher cost associated with motorcycle gear was identified as a barrier to purchase, but in general, sport motorcycle riders seemed to be willing to pay more for gear, if the cost was associated with higher quality, protection, and comfort. One rider said, "Cost is not a factor for me, if it is going to save my life and bring me home to my kids at night." Additionally, several riders mentioned that they would rather have one higher quality item that costs more, than multiple, inexpensive versions of that item.

Two sport motorcycle riders noted they rely heavily on reviews and recommendations when purchasing gear, and that ultimately, they associate these reviews as benchmarks for the quality, durability, and comfort of the item. One rider in California said that he focuses on the brand when buying gear, not for its appearance but for its quality. He further explained, "There is more rigorous testing in Europe," and therefore he tends to select European brands.

A few sport motorcycle riders said they are sometimes motivated to purchase replacement gear when they hear about new technology that may increase their safety or comfort. For example, participants discussed the air bag jacket (which has the appearance of a jacket but includes air

bags that deploy in the event of a crash, to cushion the torso and neck) and a brand of impact protection with shock-absorbing material that is used to pad motorcycle gloves, jackets, pants, etc.

Only three sport motorcycle riders mentioned visibility as a top factor they consider when purchasing gear. However, these riders also said they look for brighter colors and reflective components in their gear.

Like other rider types, sport motorcycle riders noted that they shop online and in stores, but there are certain items they will only purchase from a store because they need to try on the item. Unlike other rider types, sport motorcycle riders did not mention rallies, tradeshows or other events as typical locations where they would purchase gear.

Perception of Conspicuity as a Safety Issue

All participants in this group said that being visible to other road users is an issue for motorcyclists, and some riders added that sport motorcycles, especially, are less visible than other motorcycle types because the frame of the motorcycle is smaller and the rider's body is positioned lower during the ride.

Many of the participants shared strategies they employ to make other motorists more aware of their presence. For example, some riders added more lights to their motorcycles, adjusted the exhaust pipes to be louder, added a loud horn, and applied reflective wheel tape and strips. Riders also said they flash the headlights, ride with high beams on, and weave or swerve in a lane to avoid being in a driver's blind spot. One rider summed up the rationale for these strategies by saying, "This is the only part of other people we can control, so it is important to make it harder not to see me."

Many of the sport motorcycle riders said that motorist distraction was mostly responsible for conspicuity issues, and six riders felt that making themselves or their motorcycles more visible would not increase their conspicuity with drivers who are distracted. This sentiment was expressed by other rider types as well, notably by riders in the touring motorcycle groups.

Of those sport motorcycle riders who own and use high-visibility gear, the items they mentioned using were: a bright yellow jacket, a bright red helmet, gear with reflective strips, and a lime green backpack. The rider who owned that backpack specifically mentioned that he will sometimes only put one small item in the backpack or other times leave it empty, suggesting that its primary function is to increase visibility. Two riders pointed out that sometimes they ride to speed or do "tricks," and on those occasions they prefer being less visible.

Use of High-Visibility Gear

In general, the sport motorcycle riders were more open to using bright colors than the other rider types, but to varying degrees. For example, these participants preferred bright colors applied only in small areas and on dark backgrounds, resulting in "pops" of color as opposed to a large area of bright color.

Additionally, participants in the sport motorcycle sessions seemed to be most willing to incorporate bright colors into their helmets. Several participants mentioned that the head is one of the more visible spots on a sport motorcycle rider's body and would probably be a good location for bright colors and reflective strips. Other prime locations for pops of color for sport motorcycle rider gear were the back of the jacket and down the side of the legs and arms. Since the rider typically rides hunched over the motorcycle, the bright colors should not be on the front of the rider because they would not be seen.

Gear that is predominantly neon yellow or orange (high-visibility colors) was not looked upon favorably, and some group participants had disparaging nicknames for riders who wear a lot of high-visibility gear. For example, these riders were called "High Vis Uncles" or "Highlighters" in Austin, "mid-life crisis riders" in Ann Arbor, and "Traffic Cones" in Rockville. Participants described this type of rider as an "age 50 plus rider, who is not fun or adventurous on his/her motorcycle, but just wants to play it safe." They also said, "This rider is likely someone new to riding or just getting back into riding, who wants to be seen by other vehicles, and take it slow, but still be able to say that he/she rides a motorcycle." One rider in Ann Arbor further elaborated by saying, "It is a sign of age. These people don't care what they look like; they just want to be safe." While sport motorcycle riders in the Los Angeles focus group did not reveal a specific nickname for someone who uses a lot of high-visibility gear, a few participants did share a similar sentiment, indicating that they assume riders who wear a lot of high-visibility gear are "amateurs" who are not confident in their riding abilities.

Other participants appeared more open to the use of bright colors in their gear; these riders noted that their motorcycles were brightly colored (typically white, bright blue, or red) and that they liked their gear to match their motorcycles. Among these participants, most were more accepting of pops of color (not bright yellow or orange but matching or like their motorcycles). The riders who felt high-visibility gear may be helpful, suggested use during busy traffic times, for example, during the rush hour commute and during times of reduced visibility, such as fog, dusk, and rain. However, even these participants who were more open to the use of high-visibility gear said they were hesitant to spend money on additional gear and instead would consider it when their gear needed to be replaced.

In each location, usually one or two riders were skeptical as to whether the high-visibility colors would be effective in making the rider more visible. Several of these riders associated visibility issues mostly with nighttime riding and therefore thought the bright colors would not help the rider be seen in the dark. These riders tended to favor reflective components versus color.

In each location, at least one sport motorcycle rider was adamant that he would not wear bright, highly visible colors because he preferred black or grey. These riders usually were more accepting of the use of reflective components incorporated into the gear. One rider mentioned that he encouraged his wife to wear a high-visibility jacket when she first started riding because he wanted her to be more visible, but he said he would not wear one himself. Another participant said that high-visibility gear is more important for touring or adventure motorcycles, because they go on longer rides, whereas sport motorcycles take shorter rides and therefore have less exposure. Other riders said that high-visibility gear is somewhat contradictive to riding a

motorcycle. As described by one rider, “There is a certain risk you take when you ride a motorcycle and many riders like that risk; this type of gear is against this line of thinking.”

High-Visibility Gear Product Demonstration

Men’s jacket

Most sport motorcycle riders said that the jacket had too much high-visibility yellow color and not enough black. One rider described it as “a safety cone.” Several participants suggested the color patterns be reversed, meaning the areas that are yellow be replaced with black and the areas that are black be replaced with yellow. Participants said having pops of color might make the jacket more noticeable (conspicuous) than having an all-yellow jacket. Additionally, participants did not like that the jacket lacked reflective components and thought those should be added.

Women’s jacket

Several participants noted this as their favorite item with respect to aesthetics and the ratio of highly visible colors to black. One person described it as, “enough to get you noticed, but not too much such that you are glowing.” A few riders suggested the jacket could be improved by adding more color to the arms and adding more reflective components. Another person suggested that the bottom portion of the jacket on the back could have more reflective components because this would be an ideal spot when considering the body position of a sport motorcycle rider.

Fitted vest

In general, sport motorcycle riders did not understand the utility of wearing a vest because “it does not offer any protection” with respect to padding or armor, and it is “purely cosmetic.” A few participants would consider wearing a vest over an armored or padded jacket for visibility purposes, but ultimately it would be their preference to have the high-visibility components incorporated into their other gear. Participants cited practicality and lack of space as their main motivation behind this train of thought. A few riders also mentioned that vests are not really part of the sport motorcycle culture and instead suggested that the vest was something a Harley or BMW rider might wear.

Plain vest

When they were asked to compare the fitted vest to the plain vest, the sport motorcycle riders preferred the fitted vest. One rider was concerned that that the plain vest is too loose and that it would catch on something or flap in the wind too much. Riders in Texas commented that this vest was “terrible,” “cheap,” and “uncomfortable.” One rider said that he would rather not ride than wear the vest. One or two riders in Maryland said that they would wear it or would carry it with them in case they needed it. A rider in California thought it would be useful at night and he would consider wearing it.

Armored pants

Participants did not understand why one of the locations selected for the bright color patches was the crotch. Several people said this area is not visible when sitting on a motorcycle, and especially not visible on a sport motorcycle rider due to the body position when riding. Possible improvements included adding a patch of the bright color on the back of the calves and adding reflective strips to the outside of the pant leg.

Rain gear

A few participants said that rain gear is less applicable for sport motorcycle riders because sport motorcycles are not made to be ridden in the rain. Additionally, sport motorcycles lack storage and therefore there is no space to keep rain gear. All of this aside, participants responded favorably to the use of high-visibility colors on rain gear because they were better able to understand their utility due to reduced visibility in rain. In fact, many of the participants noted this item could be improved by increasing the ratio of highly visible colors to black and by adding more reflective strips. Participants suggested adding a reflective strip on the outside of the leg from the knee down. As one participant said, "When it is raining, fashion goes out the window…. Give me all the reflective piping and all the colors. This is one time I don't mind looking like a highlighter."

Suspenders and armbands

The suspenders and armbands initially provoked a laugh from some participants, but in general, sport motorcycle riders were accepting of this item. Participants liked that they were small and would take up little storage space. One participant said he might wear the suspenders at night because it would be easy to put on top of his existing jacket and easy to take off and store when he got to his destination. Others suggested that suspenders might be a practical piece of gear for riders who use their motorcycles for daily commuting, again because of how easy they are to store. Participants felt this item could be improved by adding additional reflective piping.

Reflective tape

All riders seemed to like the reflective tape; however, many were skeptical about applying it directly to their motorcycles or their helmets, fearing it would remove the paint. Participants also liked the price point of this item. One participant said he used something similar called "wheel tape" that makes the wheels glow. He admitted that initially he did this for an aesthetic effect and likened it to the movie *Tron*, but later realized that it also made him more visible. Several participants in that session also said they liked the idea of using reflective tape on wheels. As one person explained, "On the front and back of the motorcycle there are lights, but there is nothing to make the side of the motorcycle more visible."

How to Promote the Use of High-Visibility Gear

Among their suggestions to make high-visibility gear more popular with sport motorcycle riders, the group recommended improving the design of it. One specific idea was to design gear so that the high-visibility components can be hidden when not needed, by using Velcro or a zipper. Several riders agreed that there may be a safety benefit to using high-visibility gear, but most still said they would have a hard time wearing the existing bright colors and would prefer bright blues or reds to bright yellow, orange or green.

Several of the riders indicated that it is "not cool" to wear high-visibility gear and it is not part of the riding culture. As one rider explained, "We all laugh at the guy who looks like a safety cone so we all play a part in creating this culture where it is not accepted." To help address this, it was suggested that the focus should be on working with the manufacturers to make the apparel attractive, such as incorporating designs into the gear. Additionally, one rider suggested that manufacturers should be "persuaded" to incorporate some high-visibility components into every

piece of gear and then riders will not have a choice. This rider felt that this may help to remove some of the social pressures since everyone else will be wearing it as well.

Another suggestion was to identify someone who is respected in the riding culture and encourage him/her to be the spokesperson. Riders admitted that there is strong social pressure and that people tend to follow behavioral patterns of people with whom they ride. One participant said when he lived in India he never wore his helmet and neither did his friends. But, after moving to the United States, he rides with people who wear helmets (even though his State has no helmet law) and he, too, now wears a helmet.

Riders suggested that the best way to promote the use of high-visibility gear was to focus on new riders who are in the process of developing riding habits. One possible way to achieve this was through education on high-visibility gear during the motorcycle safety course. Education should provide statistics that address effectiveness and the added benefit. Participants expressed the notion that these colors are not fashionable and therefore not popular, so riders would need to know that wearing this gear would be effective before they would be willing to forgo style.

Several riders advised against developing "a tacky slogan" or public service announcement (PSA). It was explained that the riding culture must catch on to it, and an advertisement should not "tell the motorcycle [rider] what to do, because motorcycle [riders] do not like being told what to do."

4.2.3 Touring Motorcycle Riders: Men

Four focus groups consisting of 33 participants were conducted in Maryland, California, Texas, and Michigan with men who primarily ride touring motorcycles.

Typical Riding Gear

Touring riders varied on their typical gear. Most said they wear helmets all the time. At least a few people in each group said they would not wear a helmet in certain situations, such as in a State with no helmet law. Several participants (18%) did not respond to the helmet item on the questionnaire. While about half the touring riders said that they prefer to wear their normal street clothes when riding, the other half invested heavily in textile and protective leather gear.

There was a slight preference for leather over textile and armored gear. However, this preference was not as strong as it was in the cruiser groups. Several touring riders had been in crashes with armored jackets and testified to their effectiveness. The touring riders usually or always wore gloves (94%), boots (85%), and eye protection (73%). Leather vests were worn sometimes, usually, or always by approximately half the participants (48%), but a large majority indicated that they never wear armored vests (91%), textile vests (97%) or denim vests (91%).

Trip Factor's Effect on Gear Choice

As with other riding groups, touring riders consistently rated the weather as the most important factor when choosing gear before a ride. Several riders stated that since they ride in all weather (and sometimes for long periods), it is crucial that they have the appropriate gear, for example, replacing leather with textile gear when it gets warm. One touring rider pointed out that the

storage space on touring motorcycles offers flexibility on what to bring on a ride, ensuring comfort no matter the conditions. Most riders indicated that length of the ride and time of day were important considerations when choosing gear for a trip.

Traffic was another top factor identified by the touring groups. Many riders indicated that they wear more protective gear when they will be riding in rush hour. In California, where lane-splitting is legal, riders indicated that they believe they were putting themselves more at risk when moving through traffic, and this would influence their gear choice. Four touring riders cited deer as a reason to avoid riding at night or to wear additional gear at night.

The factor "local laws" was important to several touring participants. Riders in Michigan, especially, indicated that they rarely wore helmets unless they were in a State or country that requires them. In addition, there were one or two riders in each group who indicated that they rarely modified what they wore on their motorcycles. These people tended to wear street clothes when riding their motorcycles. One rider mentioned that he modifies what he wears based on his destination. If he is going to a restaurant, he might wear nicer, but less protective, clothing.

Purchasing Factors

In general, the touring motorcycle riders tended to buy gear and apparel slightly more frequently than other rider types, and were more likely to collect more than one item of a specific piece of gear, such as helmets. About five people mentioned that they owned several helmets, some of them customized to match their motorcycles. Some riders stated that they only bought new gear to replace worn-out gear, but other touring riders liked to "change it up" occasionally. Helmets, boots, and gloves were the items touring riders replaced most frequently. Most riders heeded the guidance of replacing their helmets every 2 to 5 years, after they were dropped or were involved in a crash. (This type of guidance is provided by many motorcycle safety groups.)

While a few people stated that they were price-conscious, most touring riders said that cost was not a factor when buying apparel and gear. Several participants said if they spent the money on high-quality gear, it would last longer and offer more value than cheaper items. A common refrain was that good leather would last "forever."

Touring riders were somewhat split on the importance of style when buying motorcycle gear. This difference was especially prevalent between Californian and Michigan riders. Whereas touring riders in Michigan claimed they did not care about that "vanity stuff," riders in California emphasized that apparel needed to have a certain "look" to it, preferably a look that matched the brand of motorcycle they drove.

In the touring groups, the purchasing factors that were most frequently considered important or very important were comfort (97%), weather resistance (94%), durability (88%), and crash protection (70%). In the focus group discussions, comfort of the apparel seemed to be just as important, if not more so, than any crash protection it offered. A few participants stated they thought riders who wore armored apparel lacked sufficient confidence needed to ride a motorcycle. However, just as many people prioritized safety when choosing gear, such as buying CE-rated (Conformité Européene/European Conformity standards) armor and apparel that has high visibility and reflective components.

Perception of Conspicuity as a Safety Issue

Universally, the touring riders stated that conspicuity was a big problem for motorcyclists. Most people attributed motorcyclists' lack of conspicuity to inattention on the vehicle driver's part. Cell phone use and distracted driving were cited by almost everyone in these groups as a real danger for people riding motorcycles. A few people said they try to use eye contact whenever possible to get drivers' attention before making a maneuver and to make sure that the driver was not holding a cell phone. However, several participants also acknowledged that motorcycles, being a smaller size, are harder for drivers to see, and that depth perception, in addition to distraction, may be to blame for crashes and close calls.

Regarding conspicuity, most touring riders pointed to headlight and brake light modifications as the most effective way to catch a driver's attention. Most of the participants said they had modified their lights to be brighter or to flash when they applied the brakes. In some cases, doing so was illegal; touring riders, however, seemed to believe strongly that it helped improve their safety. Other riders modified their exhaust pipes to be louder so that drivers could hear them coming down the road, and several riders thought that noise had more of a safety benefit than visuals.

A few riders wore gear that they said improved their visibility (that is, conspicuity). Of these, two riders said they wear high-visibility colors. One rider said that he learned from a police-operated motorcycle course that white helmets improve visibility.

Use of High-Visibility Gear

Everyone in the touring focus groups was familiar with the concept of high-visibility gear and knew other riders who wore gear with bright colors. However, only one person wore high-visibility colors every time he rode.

In general, touring riders did not like the high-visibility colors or the style of the items presented to the focus group. Some people suggested that the amount of color was unnecessary and that strips or pops of color would be just as effective. A few people said they would be unwilling to consider high-visibility gear because the colors would clash with their motorcycles. The exception to this was rain gear. About half of participants stated they would consider buying high-visibility rain gear because they believed it would help them be seen in the rain. A few touring riders pointed out that neon was just not the right "style" or "culture." This was illustrated by one person's comment that Harley Davidson riders like to wear "dead cows." The one person who consistently wore high-visibility gear when he rode acknowledged that he was something of an anomaly among motorcyclists. He also mentioned that he frequently gets "hassled" by other motorcyclists for wearing bright colors because there is still a "macho" stereotype to riding a motorcycle.

While most touring riders indicated they were reluctant to wear high-visibility colors, reflective gear was much more acceptable. Many riders mentioned that they have some gear and apparel that incorporate reflective elements, and they expressed enthusiasm for the reflective tape that could be put onto their helmets.

The touring riders were divided on whether high-visibility apparel would effectively help them be seen. Three people pointed out that touring motorcycles are larger than other motorcycles, and would likely block any high-visibility apparel that they were wearing. A few people also used the logic that, as they had been riding for decades and had not been in a crash, their skill has kept them safe and will keep them safe, not the gear or apparel. However, other riders seemed convinced high-visibility apparel could improve their safety, and indicated any safety benefit, no matter how minor, justified its use.

High-Visibility Gear Product Demonstration

Men's jacket

The consensus in the California group was that the jacket is "ugly" and the style of the women's jacket was better. Five Texas participants agreed that the jacket would help a rider to be seen, but another rider in that group said that he did not think it would help him to be seen because he is behind his (large) windscreen. Two Michigan riders said that orange would be preferable to yellow, while a few other riders in other groups thought that more reflective material is needed. One rider said that he would wear it, but that he would want to take it off when he reached his destination. The most favorable responses came from the Maryland group where five participants found the color acceptable.

Women's jacket

Only two men said that they would wear a similar jacket. Most men felt that the color was "too much" for their taste and would not wear it. One rider noted that he considered the material to be inferior to leather and said, "Unless it's made out of Kevlar or something, it's not going to last as long as leather." Some riders suggested the jacket should have more reflective material and that high-visibility color and reflective material should be placed higher on the jacket and on the arms.

Fitted vest

All the California riders said the vest would be effective for helping a motorcycle rider be seen, but none would wear it himself. There were one to two riders in each of the other touring groups who would consider wearing it, possibly over rain gear. One man said that he would consider wearing it for short trips. Some said that the price was high for a product that offered no protection other than improved visibility.

Plain vest

Opinion was divided on this vest. One rider said that no one would wear this to ride a motorcycle, but maybe to fish or hunt. Another rider said, "This is great for picking up trash on the side of the road." In fact, some riders in Maryland liked the inexpensive price and the concept that the vest could be stored and used if they break down and are standing by the side of the road. One rider said that he would slip the vest on over his rain gear to increase his visibility. Riders generally thought the wide strips of retroreflective material would be effective, but one man suggested the reflective material should go higher across the back and shoulders.

Armored pants

While one rider thought the pants were "fine," most people did not want to wear that style. As one touring rider put it, "There's a harsh divide between people who would wear it, and those who would not." In different groups, these pants were characterized as being for dirt motorcycle riders or for racing. The style was not acceptable for touring riders. One man suggested younger sport motorcycle riders might wear them. Another man noted that they were not practical for going out to dinner or to a bar because you would not wear pants under them. A few participants criticized the high-visibility design because they thought the color was in the wrong places. Riders thought the high-visibility color should be along the sides of the pants. In addition, riders mentioned that more reflective material would be needed to be practical.

Rain gear

The rain gear was popular with most of the touring riders. These riders said the gear was acceptable, although several riders said that they still would not wear it. Many riders liked the amount of high-visibility orange color but commented that more reflective material should be added. There was some debate about whether adding high-visibility color and reflective material to the pants would be effective, but most thought that strips of reflective material along the sides of the legs would improve the design. In general, the touring groups commented favorably about the rain gear's reasonable price, small size for storage, and good quality.

Suspenders and armbands

In two groups, a few riders initially laughed when they saw the suspenders and commented that they were not for motorcycle riding but possibly appropriate for dancers to wear. However, other touring riders recognized the utility of the armbands and suspenders. One rider thought the armbands would be useful for the leader of an organized group ride because it would make the leader easier to see for the other riders in the group. Another rider liked that the gear was small and could be stored easily. Several men in the groups commented positively about the potential effectiveness of the armbands at increasing visibility, but only one or two seemed open to using them.

Reflective tape

The reflective tape was popular among touring riders, with more than half of participants stating they liked it. One rider commented that it would be perfect with a white helmet because during the daytime you could not see it. Many in the touring groups said that they would purchase the tape. One rider even said it was the "best thing on the table" and that he would put it on his motorcycle and clothes. While several men in the groups said that they would put the tape on their helmets, some participants expressed concerns about the tape ruining surfaces on which it is applied. One rider expressed some skepticism: "Old school guys are not going to buy this stuff. They want jean jackets and leathers." In addition, some riders said they would prefer stylized stickers (skulls, flames, etc.) that were reflective, rather than plain tape.

How to Promote the Use of High-Visibility Gear

Insurance breaks and advertisements were mentioned as possible motivators to get people to purchase high-visibility gear. One man suggested that he wants to look good, so that the safety message is a benefit, but not the primary reason for the purchase.

In one of the groups, several men said they would not wear high-visibility apparel unless it was required by law. Another participant in that group, who said he is a law enforcement officer, said that when he rides for pleasure, he wants to be comfortable. He also said he has seen too many crashes involving motorcyclists who had worn high-visibility gear for him to believe that high-visibility gear would make a safety difference. In his estimate, a small percentage of motorcyclists uses high-visibility gear. Another man in that group, who wears high-visibility gear, said he notices a difference between how people see him now and how they saw him before he wore high-visibility gear. He suggested that to promote high-visibility gear, advertisements should emphasize the trauma of crashes and show that high-visibility gear is effective at preventing crashes.

Another man, who used to work for a major motorcycle manufacturer, suggested that changing the law is not the answer because manufacturers are already starting to change the culture and many black items now have reflective elements on them. A similar suggestion, to have manufacturers begin incorporating high-visibility elements in their branded apparel, was discussed in another group as well, with a rider explaining, "There is significant brand influence over what people wear."

Promoting the use of high-visibility apparel by improving the design was a theme in a few groups. Two riders agreed that high-visibility elements should be added to casual apparel such as T-shirts because some people ride (in warm weather) without motorcycle jackets. One rider said that the high-visibility samples shown to the group had "too much [color]." Other suggestions were to offer designs with "more silver [reflective material], less orange" but "don't go crazy with the color." Another participant suggested that being able to customize the designs on gear would be important to him.

4.2.4 Scooter Riders: Men and Women

There was one focus group of scooter riders, consisting of seven men and women, conducted in Los Angeles. All but one participant in the scooter group had motorcycle riding experience before riding a scooter. One rider currently owns a scooter and a motorcycle. Participants said that the reasons that they choose to ride scooters rather than motorcycles were ease of riding, maneuverability and parking, better gas mileage, and the ability to carry groceries. Three switched from riding motorcycles to riding scooters after experiencing serious crashes on their motorcycles. Four participants in the group were in crashes on their scooters, and one male rider has been struck by other vehicles on four occasions.

Typical Riding Gear

All the scooter riders said they wear helmets. One wears a three-quarter helmet and the rest wear full helmets, two with face shields. Most participants indicated they never or rarely wear armored jackets, textile jackets, leather vests, armored vests, textile vests, denim vests, armored pants, or chaps. A majority usually or always wear denim pants and eye protection. Most wear rain gear when it rains. Three participants rarely or never wear riding boots, but the other four participants sometimes, usually, or always do. Five participants wear riding gloves at least sometimes.

The scooter riders said they do not always wear the same apparel. One male participant wears business attire for his commute to work. For trips on the freeway, he wears over-pants because

he feels more risk in that environment. He used to wear flip-flops on his feet sometimes when riding, but stopped doing that after he was in a crash.

Another rider modified his riding gear after being in a crash. After being struck by other vehicles on four occasions, he now wears a backpack with strobe lights because he wants drivers to see him. Visibility was very important to him and he mentioned the topic early in the group. He also wears a helmet with reflective strips and has lights on his rims. He used to think that leather was sufficient but now he also wears Kevlar elbow and knee guards.

Another participant said that how far she is traveling is an important factor in what she chooses to wear. On hot days, she wants to look "cute," especially if she is on the beach. However, after she fell off her scooter, she stopped wearing shorts. She wears denim much of the time and always has a backpack that acts as a "security blanket." She added reflective material to one of her backpacks.

Trip Factors' Effects on Gear Choice

When choosing what to wear on a trip, all the scooter riders indicated that weather, length of ride, and time of day were factors. Furthermore, those three factors were voted as the most important factors. Five out of seven indicated that they also consider the road type as a factor in choosing what to wear for a ride.

One rider said that she tries to keep out of the sun and always rides with a bandana on her face, day or night. She said that she cannot wear a lot of protective gear because of road rash. "I've tried wearing the stuff with the pads on, but it just rubbed my skin." She admitted that although she has crashed several times, she does not wear a lot of protective gear: "If I'm going to crash, I'm going to crash." Later, she said, "I have been very lucky."

Another rider, who said that he never rides on the highway, always wears dark clothes. However, he said, "Hearing these [crash] stories, I think I'm going to get some reflective gear." He said he can store gear on his scooter. For example, he always carries a windbreaker jacket.

One female rider said she wears shorts when she is going to ride just a short distance. She said she understands that reflective gear is very noticeable so she has a reflective vest. "When I'm riding here or there, people seem to notice the vest." She also said that she spends a lot of money on helmets and always wears a helmet because she has known people who have died in crashes.

Purchasing Factors

Six out of seven scooter riders indicated that crash protection, increased visibility, and legal requirements are very important purchasing factors for riding gear. Most riders indicated that comfort, weather resistance, and durability are also very important purchasing factors. The riders said that customer/expert reviews and personal recommendations were important or very important factors in their purchasing decisions. Style was indicated as an important factor by five of the riders, and six riders indicated that color was either important or very important. Five riders said that "matching the gear of another person/people in my riding group" was not important. Most riders rated "I like the way I look in it" as an important or very important factor, but "someone else likes the way I look in it" as not or less important. A female rider said that the

brand of gear is important to her and she "would rather buy a [name brand] than a no-name for the same price."

Riders in the scooter group said they tend to buy new gear often, more so than other motorcycle riders do. One male rider said whenever he takes his scooter to the shop for an oil change he ends up buying something. Several others in the group nodded in agreement with this comment. One person explained that scooters need a lot of maintenance and frequent oil changes. Four riders said that they purchase gear online but they like to check it out in person at a shop before making the purchase.

Perception of Conspicuity as a Safety Issue

All scooter riders in the group indicated that being seen by drivers is an important safety issue and they understand they must make themselves conspicuous by riding in a defensive manner, and be constantly "on alert." Driver distraction was mentioned as a "huge" problem.

A female rider said that she often honks her horn. "If I don't see your eyes in that mirror, I will usually just honk." She said that she can understand how high-visibility gear could be useful and that she is aware that drivers cannot really see her since she usually wears all black.

A male rider pointed out that scooters are very quiet compared to motorcycles. He said that, "on a scooter, if drivers can't hear me, they should be able to at least see me." So, he takes on a lot of the responsibility to be seen.

Use of High-Visibility Gear

With a few exceptions, scooter riders were familiar with high-visibility gear, but may not use it themselves. One rider said she used to have a bright yellow rain suit when she lived in Florida where it rains a lot, but since moving to California has had no need for it. Other riders agreed that rain gear was not really needed in Los Angeles. One male rider said he has rain gear but it is not high-visibility. He said he relies on defensive driving and he cares about how he looks. He also said he hopes that wearing high-visibility apparel does not become a [legal] requirement.

A few in the group said they might be open to wearing high-visibility gear. There was some discussion about the high-visibility yellow, which participants generally did not like. One female participant suggested that turquoise, red, or pink would be more acceptable. Another female participant was strongly opposed to wearing pink. Two participants expressed interest in a high-visibility orange vest.

Two riders in the group mentioned they have retroreflective gear. One male rider had a helmet he said looks gray during the daytime, but is reflective at night. Another male rider said he has retroreflective gloves. A male participant said he does have a few friends who wear high-visibility gear when riding scooters. Some participants discussed that gear choice might depend on the size of the scooter, speed, and road type. High-visibility gear might be more appropriate for larger scooters on high-speed freeways.

All the scooter riders agreed with one participant's opinion that the streets in Los Angeles are too dark and do not have enough streetlights. This, he said, contributes to traffic crashes. A few

participants suggested adding illuminated lights to riding apparel would be a good idea. They thought flashing lights would be too distracting, and one participant expressed the concern that strobe lights can cause some people to have seizures. Another participant noted that by adding lights to apparel, there would be less need for reflective gear.

High-Visibility Gear Product Demonstration

Men's jacket

A male rider said his friends who ride cruisers would not wear this jacket. However, he said people who tour or who are from out of State might wear it. Another male rider said he would consider wearing it if he were going on a longer trip. A third male rider agreed with this statement and said he might wear it for a longer trip, but not for his commute to work. A female rider said she would not wear it because it was too heavy.

Women's jacket

A female rider said she wished the yellow on the jacket were blue. "This is all well and good, but I'm used to seeing people with [sport motorcycles] wear this stuff." She said it would look "weird" on a scooter. The consensus in the group was that high-visibility apparel is not the right "look" for scooter riders. Five participants agreed that looks are important. A female participant explained that when riding her scooter, "My clothes are my car." People see her, so she wants to look good. Another male participant noted the jacket had a lot of high-visibility reflective material on the back. He said he always wears a backpack with reflective material, so the jacket would be redundant.

Fitted vest

This vest got positive comments from the scooter group. Three female rides said they would wear it. One female participant suggested the grey reflective part should be extended to cover the whole vest. A male participant noted the vest seemed to have good ventilation.

Plain vest

This vest received positive comments, especially because of its low price. Most people in the group accepted this vest as a good product. A female rider commented she could store items in the pockets. A male rider commented, "That could save your life." Another male rider said he used to have a similar vest he wore a couple of times but then stopped. Another male rider had a similar vest, but his Velcro closures would tear off on the freeway at high speed. A fourth male participant said he might wear it if it "wasn't so baggy." He seemed to be concerned about the vest flapping in the wind.

Armored pants

Women in the group said the pants were too heavy and had little maneuverability. One said she would prefer the gear be skin-tight. A male rider mentioned a protective armor product that is tight and can be worn under normal clothes.

Rain gear

Everyone in the scooter group agreed the rain pants need more retroreflective strips down the legs. A male participant liked the orange color of the jacket better than yellow, but a female

participant did not like the orange. A male rider said he would like a vest made so he could attach lights to it. Another male rider said he would like the vest better if it had a color combination of red/black or green/black. Five people in the group said they own rain gear, although some only have a poncho rather than a raincoat and pants.

Suspenders and armbands

The scooter riders in general said they did not like the high-visibility accessories, although one male rider mentioned he liked how he could just put the suspenders on over whatever he was wearing. Another male rider noted a vest would be easier to put on and take off. The first male rider agreed and added vests also have pockets. A third male rider said he would like to have attachment points for lights and this led to some further discussion about adding lights to riding apparel.

Reflective tape

All riders in the group said they liked the reflective tape. In fact, two participants said that having seen it, they planned to purchase it. One rider said she would decorate her helmet with it.

How to Promote the Use of High-Visibility Gear

Suggestions from the scooter group for promoting the use of high-visibility gear included: advertisements, giving away free high-visibility gear, educating scooter shop owners about the safety benefits, providing a demonstration online that illustrates what a rider looks like with and without reflective high-visibility gear, and providing a financial incentive such as an insurance discount for purchasing high-visibility gear or for taking a class about it. A female rider suggested promoting high-visibility gear peer-to-peer, that is, by having people wear it and talk about it. A male rider, who also participated in the touring motorcycle focus group in Los Angeles, said he would be more likely to wear high-visibility gear when riding his scooter rather than his touring motorcycle. His rationale was that bright colors would fit the aesthetic of his scooter rather than his touring motorcycle. This attitude suggests scooter riders may be more willing to wear high-visibility gear than are motorcycle riders.

4.2.5 All Motorcycle Types: Women

There were four focus groups of women operators of mixed motorcycle types, totaling 34 women. One group was conducted in each of the following States: Maryland, California, Texas, and Michigan. The women ranged from 3 months to 38 years of motorcycle riding experience.

Typical Riding Gear

Nearly all participants indicated they always or usually wear a helmet. Other gear that was most commonly worn either always or usually included denim pants (90%), riding gloves (88%), riding boots (79%), and eye protection (45%). Three women specifically mentioned wearing half-gloves or cutting the fingertips off their gloves.

With respect to high-visibility gear, about one-third of the women said they never or rarely wore it, another third wore it sometimes, and the other third wore it usually or always. Vests were not worn by many of the women. For example, most participants indicated they never or rarely wore a textile vest (82%), an armored vest (79%), or a denim vest (73%). Also, specialized motorcycle

riding pants were not often worn. Most participants indicated they never or rarely wear leather pants (76%), textile pants (70%), or armored pants (67%).

Some women wore minimal gear at least on some occasions (such as taking a short ride to the gym) while others seemed safety conscious and wore much protective gear. One rider said she did a lot of long distance rides and that, among other safety gear, she had an airbag vest that would inflate in a crash and an attachment to her helmet to stabilize it around her neck.

A rider in Texas noted she always wore a camera on the side of her helmet because she knows crashes are always the driver's fault and she wants to be prepared in case anyone tries to blame her in the event of a crash. A few women in Los Angeles mentioned wearing a neoprene[4] mask or a scarf, or a bandana to prevent breathing air pollution.

Trip Factors' Effect on Gear Choice

When choosing what to wear for a trip, "weather conditions" was the most commonly considered factor, by nearly all (94%) participants. This was followed by "time of day" (79%), "length of ride" (76%) and "the kinds of road you'll be riding on" (76%), and "type of traffic you expect" (64%).

Many riders discussed comfort and temperature as primary considerations in choosing gear. They tended to wear less gear when the temperature is higher, or when they anticipate being "stuck in traffic" on a hot highway. One rider, who always wore an armored jacket, noted hot weather can make rides very uncomfortable. "Time of day" was selected because of its correlation with temperature and because of reduced visibility at night.

Some participants in the female rider groups (39%) selected "when riding as a passenger" as a factor they consider in choosing gear. One woman said she feels safe with her boyfriend driving the motorcycle, so she wore less gear as a passenger. Another woman said sometimes she does not wear her helmet when she is a passenger, and a third woman said she wears more flexible clothes when she is riding alone as opposed to riding as a passenger. Another participant said she usually wears an armored jacket except when she transports her wife as a passenger. For those trips, she has her wife wear the jacket.

One woman mentioned that when she rides at night she wears high-visibility gear. She had been in a crash and now she wears an armored jacket with high-visibility color and reflection. Another woman (from Maryland) said she wears a high-visibility vest, but when riding in Pennsylvania, she does not wear her helmet.[5] A woman in California said she wears denim during the day but leather at night. She said this difference is primarily a fashion choice. Another woman mentioned that for short trips she wears less gear to "look good and catch some sun." Another woman mentioned she added "event" to her list of factors because sometimes when she goes to a concert she rides wearing just a dress rather than her other gear, and she wears her gym clothes when riding to the gym.

[4] Neoprene can maintain flexibility in a range of temperatures; it is used in scuba-diving and surfing wetsuits.

[5] Pennsylvania does not have a universal helmet use law.

Purchasing Factors

The factors considered important or very important in purchasing decisions by most women riders were "comfort" (97%), "weather resistance" (97%), "durability" (88%), "crash protection" (85%), "It is DOT certified" (76%), "increased visibility" (67%), and "I like the way I look in it" (67%). The factor, "Someone else likes the way I look in it" was rated as important or very important by 24 percent of the participants and "brand/logo" was an important or very important factor for 15 percent. Most frequently cited as the top three purchasing factors were "comfort," "crash protection," "cost," and "weather resistance."

Regarding crash protection, one rider said she believes in function over fashion. Another rider said she looks for Kevlar and DOT certification in gear to buy. She said, "I want to make sure when I get up, my skin is still attached."

In each all-women rider focus group, riders commented it is difficult to find motorcycle apparel that is comfortable and fits well. This seemed to contribute to their preferences for purchasing gear from shops where they can try it on as opposed to purchasing gear online. One woman said, "I'm too wary of buying online, especially with jackets or pants, I feel like I have to try them on first." One woman noted she gets her gear custom-made because fit is so important. New gear, especially jackets and gloves, was mentioned as being uncomfortable and too stiff.

Several women discussed purchasing used motorcycle gear because it is less expensive. One rider explained she likes to purchase vintage gear and have it customized. She said older gear is better because it is "broken in" (more comfortable).

In one group, there was discussion and general agreement that women's motorcycle gear costs more than men's gear. One woman said women's gear sometimes offers less protection. Products marketed as armor[6] may contain only foam instead of actual armor. Another woman pointed out that in most motorcycle advertisements, women are not depicted wearing gear.

Perception of Conspicuity as a Safety Issue

Most participants in the all-women rider groups expressed the belief that visibility or conspicuity of motorcycle riders is a significant safety issue. When the topic of motorcycle rider conspicuity was raised in the California group, a woman said, "If [drivers] put their cell phones down, they might be able to see us a little easier." Approximately half the women in the Maryland group agreed that driver distraction is a big part of the motorcycle conspicuity problem, and one woman said there is a "culture of driver distraction." In another group, most participants said they do not think about wanting to be seen when making gear purchases, but one woman said, "It should be a more important factor." Another woman disagreed and said she did not think gear was very effective for getting drivers' attention, and her preference is that drivers hear her [loud motorcycle]. All the California participants agreed that laws limiting the decibel level of motorcycles are not helpful to the conspicuity problem.

[6] Armor in motorcycle safety gear refers to high-density foam panels fitted into the shoulders, elbows, back, hips, and knees of motorcycle PPE clothing.

One rider suggested the motorcycle conspicuity problem could be addressed by teaching people to look for motorcycles and this should start by educating children about motorcycles. She suggested that when going on a trip in a car, parents could encourage their children to actively look for motorcycles as a game, and perhaps reward them when they spot one.

Participants mentioned several strategies they use to increase their conspicuity. These include relying on sound by having loud motorcycles and by revving the engines to capture people's attention; positioning themselves within the lane to be seen; and adding lights to the motorcycle.

Three Michigan riders said they wear high-visibility vests; to improve conspicuity for night riding, and some of the other Michigan riders had modified their gear by adding reflective tape and decals. Two women said they added beads and crystals to their helmets to reflect the sun and make the helmet more visible during the day. Another woman said she wears bright pink, which she thinks indicates to drivers that she is a woman, which helps her get noticed.

Several women in the groups were skeptical that high-visibility apparel would be helpful. One said she already has many lights on her motorcycle and she does not wear bright colors. She said high-visibility gear should "look cool" [for people to use it]. Another said she has a bright yellow motorcycle yet people do not necessarily see her.

Use of High-Visibility Gear

Participants in the women rider groups generally were familiar with high-visibility gear, but only a small minority owned it. The high-visibility florescent yellow and green colors were generally judged to be "ugly" and several women across different groups mentioned they would be more interested in high-visibility gear if other colors were used. A few women said orange might be acceptable, but others preferred pink, blue, turquoise, and purple. Several mentioned the style of the apparel was important and that if high-visibility gear could be designed to be more appealing they may consider wearing it.

Overall, most of the riders seemed to think high-visibility gear could increase safety, but they did not necessarily see a benefit in using it all the time. They seemed to acknowledge the usefulness of retroreflective gear and high-visibility colors for specific conditions or types of rides, such as at night, in poor weather conditions, or when riding in unfamiliar areas. A few women who expressed dislike for high-visibility gear seemed more open to accepting these colors or reflective material on their helmets. One rider said pops of color catch the eye more than a large area of color, and several others agreed.

High-Visibility Gear Product Demonstration

Men's jacket

This jacket was generally not liked because it has "[too] much color." One Michigan rider suggested appearance could be improved by inverting the colors (what is currently black should be yellow and what is currently yellow should be black.) Another Michigan rider commented, "As women, we have a tendency to focus more on style than on safety." Another woman agreed with her, and a third woman said, "I would want my daughter to wear it to make her more

visible, but I would not wear it." Four Maryland women said they would wear a similar jacket if it had a different bright color (other than yellow).

Women's jacket

In general, the style and color of the sample women's jacket was more acceptable to female riders compared to the sample men's jacket. In contrast to the men's jacket, one woman said she liked the jacket because the color was "not too much." Five women in that group agreed the amount of high-visibility color on the jacket would be acceptable to them, although other colors may be preferred. Women in two groups suggested more retroreflective material should be added to the design.

Fitted vest

The fitted vest proved popular in California, with five women liking the vest, although they questioned why it did not have any armor or other protective features. One rider who liked it said purchasing it would be "money well spent." However, the Michigan riders saw the price of the vest as too expensive, and no one in the Maryland or Texas groups said they would wear it. Some women commented positively about the reflective strips on the vest.

Plain vest

Opinions on the plain vest varied by location. Three California women said the vest looked like something worn by construction workers, but one said she would wear it. Five Texas riders said they would consider wearing it. In general, the low price of the vest, its small size (for storage), the "easy on, easy off" aspect, and high visibility seemed to make the vest acceptable to some participants, even though they did not particularly like the style. No one in the Maryland group liked the vest, but one said she would consider wearing it if she were riding in rain and sure no one she knows would see her wearing it.

Armored pants

Almost none of the riders would consider wearing pants like the sample presented to the group. Women in different groups suggested the pants look like snowboarding or skiing pants. One rider said it "reminds me of a race car." Some indicated they did not look safe or well made. Several riders noted the placement of the bright colors was bad and that the bright colors should be on the hips, down the legs, and on the lower back. A few women suggested that adding reflective material to the backside would be helpful for sport motorcycle riders: "At least the guy behind you won't hit you."

Rain gear

Participants viewed the rain gear's reasonable price and its small size when folded up as positive aspects. Most California riders liked this product and some wanted to know where they could purchase it. One rider commented, "I know it's not [name brand] because it's only $49." Women were divided on the color of the rain gear: At least four women thought the bright orange color was more acceptable than bright yellow, while four women in another group said they would have preferred yellow to orange. Riders in three groups commented that the suit should have more reflective elements, especially along the legs.

Suspenders and armbands

Opinion on the suspenders and armbands differed slightly by group. No one in the Maryland group would wear the suspenders, but three would consider wearing the armbands. At least four Californian women and four Texan women would consider the suspenders and armbands. Four Michigan women had positive comments about this product. Participants liked that suspenders and armbands can be worn over other garments and easily stored when not in use.

Reflective tape

Most women in each group liked this product and said they appreciated the possible safety benefit of the retroreflective material. They liked the idea that they could customize placement of the tape on their helmets, motorcycles, or other gear, as well as the low price. A few riders expressed concerns about reducing the value of their motorcycles if they put tape on them, or ruining their helmets, and possibly needing to buy more tape if it falls off. Four women wanted the reflective tape in different colors.

How to Promote the Use of High-Visibility Gear

Suggestions from women rider groups for promoting high-visibility gear included roadside and television advertisements, getting major motorcycle manufacturers to create branded high-visibility apparel, providing financial incentives such as insurance discounts for purchasing high-visibility gear, and promoting in podcasts and on Internet sites such as YouTube. In addition, some participants suggested promoting high-visibility gear with celebrity endorsements, especially high-profile women, which might encourage women who ride motorcycles to buy high-visibility gear.

4.2.6 Mixed Motorcycle Types: Passengers

One focus group was conducted in Maryland with five women who ride as passengers on someone else's motorcycle. The motorcycle type was mixed.

Typical Riding Gear

While some passengers in this focus group did not own gear or apparel that was specifically made for riding, a few mentioned wearing protective textile and leather jackets. All passengers wore helmets, but they did not necessarily own those helmets. Instead, some riders would borrow from whoever was driving the motorcycle. In general, not owning their own motorcycles was a barrier to purchasing high-visibility gear. One woman owned a leather jacket, which she wears while riding, and on occasion she wears chaps; however, she indicated that she wore this gear more for fashion than for safety or comfort. Two women said they substituted riding boots for work boots manufactured by a major brand, which they felt were just as effective. Denim was a popular material, both for pants and vests, especially since it existed in their regular wardrobe.

Trip Factors' Effect on Gear Choice

Most passengers indicated "weather" as the top factor when deciding what to wear, and most other factors somehow related to weather. For example, one woman thought time of day was important, but explained the temperature varies depending on when she would be riding. One woman indicated riding on cruiser or sport motorcycles would influence what she wore. If she was riding as a passenger on a sport motorcycle, she would wear tighter fitting clothes to reduce drag, and looser clothes if she was riding on a cruiser.

More so than in the other focus groups, women in the passengers group were more likely to say that looks and style matter when choosing what to wear on a motorcycle. Two people said they try to match their clothes to their rider's. Another woman explained that it was important to look good while riding.

Purchasing Factors

Most women passengers rarely bought new gear. Three would buy new gear once or twice a year, but the others would only buy new items when their gear wore out. One passenger said she never bought new gear. Instead, she borrows gear from friends. About half the passengers stated they bought apparel in stores and half preferred buying online. One woman would buy items when she was at motorcycle shows.

About half the passengers considered safety when purchasing new gear. Two women considered crash protection and new technology features when buying apparel. Comfort was also very important to the group, with most women identifying comfort as a key factor. Ventilation was mentioned several times, with some passengers stating that ventilation helped them when they experienced "hot flashes."

Perception of Conspicuity as a Safety Issue

Every participant in the passenger group said conspicuity was a safety issue. One passenger said lane-splitting[7] and weaving in and out of cars can exacerbate the issue. Another passenger agreed that conspicuity was an issue, but went on to say noise coming from loud pipes was the best way to alert motorists of a motorcycle's presence. Compared to other groups, the passengers did not seem to blame motorists' distraction as a reason motorcycles are not detected by other drivers.

One passenger brought up to the group that she had reflectors on her clothing and the motorcycle she rides. Most other women said that they also had reflective elements on their gear. One woman owned a few high-visibility items. However, two others said that being seen is not a priority for them. One woman explained she would rather be protected via armor or padding in the event of a crash than wear high-visibility gear.

Use of High-Visibility Apparel

Passengers were more open to the idea of high-visibility apparel than other focus groups. In general, they preferred more subtle designs with pops of color as opposed to solid neon. No one knew riders who wore high-visibility apparel. Instead, reflectors seemed to be more popular, both with the passengers and the people who were operating the motorcycles.

Two passengers had previously worn high-visibility vests when riding at night. However, they did not wear these vests regularly. One woman suggested high-visibility clothing was only for sport motorcycle riders. She thought people who ride cruisers do not normally have color in their apparel; instead, they may paint their motorcycles different colors to be more visible. Another woman was skeptical of the signal sent by wearing high-visibility colors. She said, "If you are that scared that you feel like you need to wear that much bright color, then you don't need to be

[7] Lane-splitting is not legal in Maryland, the State in which this focus group was conducted.

riding a bike," implying that people who wear high-visibility colors are less skilled or less confident than other riders.

High-Visibility Gear Product Demonstration

Men's jacket

Overall, everyone in the group liked the jacket, saying they thought it looked safe due to color and padding, and would consider purchasing the jacket. One woman wished it had reflective elements; she said it would be a good jacket to wear during the day, but it is not particularly visible at night.

Women's jacket

All participants liked the tailored look of the women's jacket. They thought it looked more youthful and feminine than the men's jacket. Most passengers also noted they liked the jacket's pockets. One participant also noted she liked how the jacket "is not totally neon."

Fitted vest

In general, the passenger group felt the fitted vest cost too much, especially since it offered less padded protection than the jackets. However, the group liked the look of the vest with its reflective components, and thought it offered a good balance between high-visibility color and black.

Plain vest

While no participants liked the look of the basic vest, some noted they might wear it if it were given to them. Passengers liked the low price and a few people said they would consider buying it for nighttime rides, especially because it was so cheap. One person noted a cheap vest would be a good option for people like her who do not own their own motorcycle and are unwilling to spend a lot of money on gear.

Armored pants

The group was receptive to the high-visibility pants; however, all the women wished the pants came in a color other than yellow. Acceptable colors included bright pink, bright purple, and bright blue. The group also thought the ratio of high-visibility color to black could be improved by reducing the amount of high-visibility color on the pants.

Rain gear

The women passengers were divided about the value of the rain gear. While one person thought it was too expensive, others felt like it offered good value for the cost. However, most women in the group did not like the aesthetics of the rain gear and did not think it would "look cool." There was also debate on the lack of armor provided; one woman thought the gear should have more padding, while another woman liked how it could be rolled up easily.

Suspenders and armbands

About half the women passengers liked the suspenders and armbands. One woman thought they would be good to have on night trips; however, another was worried the suspenders would get caught in the handle bar and become a safety hazard. Another passenger said the person she rides

with would not "allow [her] to wear something like that when on his bike," thinking it would not fit his "cool" aesthetic.

Reflective tape

Unlike other motorcycle groups, women passengers were not enthusiastic about the reflective tape. A few passengers felt like it would easily come off apparel, while another thought attaching it to a motorcycle would be unacceptable. While one woman in the group thought the tape might be good for updating old apparel, another woman said she would rather buy something new with reflectors already built in.

How to Promote the Use of High-Visibility Gear

Everyone in the group agreed there is a safety benefit to wearing high-visibility apparel and gear. However, at least two women thought the style and colors would have to change to encourage cruiser riders to wear high-visibility gear, especially if the State mandates use of high-visibility gear when riding. Because of the different preferences, one woman said cruiser riders might be more inclined to wear reflectors than bright colors. Another woman agreed with this, saying, "It doesn't look right being on a cruiser and looking like you have the need for speed," implying that bright colors are only suited for sport motorcycle riders.

Two women said they previously saw advertisements for high-visibility apparel in stores and online and suggested billboards might be an effective way to inform people of the benefits. One women suggested PSAs should emphasize the risk motorcycle riders take when they do not wear high-visibility apparel, using graphic imagery if necessary. This idea was popular in the group, with another participant suggesting statistical information on the benefits of high-visibility apparel could be incorporated into advertisements. One woman said the advertisements could be subtle, perhaps advertising for something else, but portraying people in high-visibility gear.

Discounts on motorcycle insurance were discussed by the group as a means for promoting high-visibility apparel. Women passengers suggested a discount of 10 to 20 percent with the purchase of high-visibility gear. Several women suggested high-visibility apparel should be made more functional, incorporating padding and pockets to offer more utility to riders.

4.3 ADDRESSING THE RESEARCH QUESTIONS

Each key research question is addressed in this section by applying the findings from the focus group discussions and the questionnaire data.

To what extent is conspicuity (relative to other factors) considered when selecting gear?

Most riders in the focus groups were not familiar with the term "conspicuity." However, nearly all riders agreed that motorcyclists not being seen by drivers is a significant safety problem, and many of them had considered or implemented ways to make themselves more noticeable. For example, many participants described having loud exhaust pipes, riding in a way to be seen by other motorists (such as avoiding blind spots around other vehicles), increasing the intensity and number of lights on their motorcycles, and wearing high-visibility apparel. Often, the impetus for

riders to increase their conspicuity were experiences of being in a crash, having a close call, or knowing friends who experienced serious or fatal injuries in a crash.

Prior to the start of the focus groups, participants were asked to rate the importance of a set of 21 possible factors that might be considered when purchasing motorcycle gear. The riders identified the most important factors as comfort, durability, and crash protection. Increased visibility was ranked sixth. See Table 5 for the results.

Table 5. Ranking of factors in purchasing new motorcycle gear

Rank	Factor	Mean Importance Score
1	Comfort	4.597
2	Durability	4.470
3	Crash protection	4.351
4	Weather resistance	4.187
5	DOT certified	4.045
6	Increased visibility	3.772
7	Color	3.634
8	Crash avoidance	3.571
9	Cost	3.560
9	I like the way I look in it	3.560
11	Customer/expert reviews	3.537
12	Style	3.508
13	Personal recommendations	3.500
14	Sales, discounts or special deal	3.488
15	State law requires it	3.379
16	Machine washable	3.000
17	It matches the look of my motorcycle	2.842
18	Other certifications	2.805
19	Brand/logo	2.394
20	Someone else likes the way I look in it	1.977
21	It matches the gear of another person/people in my riding group	1.508

Why do/don't motorcycle riders choose to wear high-visibility gear?
The primary reason participants said they wear high-visibility gear is to be seen by drivers. However, a consistent finding across all groups, except the passenger-only group, was that participants said drivers do not look for motorcycles and are frequently distracted by cell phones. Participants suggested motorcycle gear needs to provide utility beyond high visibility, such as crash protection, thermal comfort, and storage (for example, pockets).

Many participants who wear high-visibility gear said they do so because of their personal experiences being in a crash or knowing friends who have experienced serious injury-producing or fatal crashes, and these riders believe it improves their safety.

Most riders said they do not wear high-visibility gear. One common reason was its appearance. For example, many riders said they do not like high-visibility yellow, but a few said other high-visibility colors (orange, bright blue, purple, pink) would be more acceptable. Riders also noted the gear's appearance does not fit their culture. For example, cruiser riders tend to wear jeans and black leather, and the participants indicated riders who wear high-visibility apparel in that culture may be teased or ridiculed.

Another barrier is riders' skepticism that high-visibility apparel increases safety. Many riders suggested that because they are careful, skilled riders they do not need high-visibility gear for safety. Others noted that they already use lighting enhancements on their motorcycles and high-visibility gear would not make them more noticed. Many riders said drivers are already distracted by cell phones and, in general, would not look and see them wearing high-visibility apparel. A minority of riders expressed a fatalistic attitude that when their time was up, they would accept dying in a crash, so there was no point in wearing high-visibility apparel.

Another reported reason for not wearing high-visibility gear is its expense. Many participants said it is hard to justify buying gear if currently used gear is in good shape. Expressed by both men and women, but perhaps more so by women, was difficulty finding comfortable gear. A few women said they buy custom-made gear, or buy previously owned leather gear that is broken in, and then have it tailored.

Riders who do not use high-visibility gear noted that novice riders are more likely to wear high-visibility apparel than experienced riders, but as novice riders gain experience, they may (or are likely to) stop using it. They also said older riders tend to wear high-visibility gear more because of crash experiences, or because they feel less confident in their riding skills.

Participants noted motorcycle riders may consider wearing high-visibility apparel on some trips, but not all trips, depending on the riding conditions. For example, participants expressed interest in wearing high-visibility gear on trips they perceived as riskier, such as at night, in poor weather, over long distances, on congested highways, or when "lane-splitting" through dense traffic.

Are certain types of motorcycle riders (e.g., sport motorcycle, cruiser, touring, scooter, or women) more inclined to wear high-visibility gear?

Riders of different types of motorcycles varied in their use and willingness to use high-visibility gear in the all-men groups but not in the all-women groups. For example, men who ride cruisers were less inclined to use high-visibility gear than the men who ride sport and touring motorcycles. An exception was in the use of retroreflective materials. Cruiser riders were open to the idea of adding retroreflective elements to their jackets and other gear, especially if it were inconspicuous during the day. The all-women rider groups, regardless of the type of motorcycle ridden, expressed greater willingness to use high-visibility gear.

Among the women riders, two-thirds rated increased visibility as an "important" or "very important" factor in making purchasing decisions. Only half the men in each of the cruiser, touring, and sport motorcycle categories rated increased visibility as "important" or "very important." Also, a greater proportion of the female riders (12%) than male cruiser riders (7%),

male sport motorcycle riders (5%), and male touring riders (3%) indicated increased visibility as one of their top three purchasing factors. In addition to women who operate motorcycles (the riders), women passengers were inclined to consider using high-visibility gear. When considering their purchasing decisions, 100 percent of the female passengers and 86 percent of scooter riders indicated increased visibility was a "very important" factor.

What would motivate motorcycle riders to wear high-visibility gear?
Participants suggested different ways to motivate motorcyclists to wear high-visibility apparel. Suggestions included the following.

- Create designs that are more attractive and appealing to motorcyclists.
- Persuade companies and motorcycle equipment manufacturers to incorporate high-visibility elements universally into their branded gear, so it becomes the norm over time. This would remove the current social pressure of being different when using high-visibility gear.
- Advertise on television, roadside billboards, Internet sites, and podcasts with content that demonstrates the benefits of high-visibility apparel.
- Illustrate benefits of high-visibility apparel visually through side-by-side comparisons, or through statistics that prove safety benefits. There is a need to make a convincing case about the safety benefits.
- Use respected people (celebrities) in riding culture to endorse use of high-visibility apparel. Use famous women to endorse it when targeting women who ride motorcycles.
- Provide financial incentives to use high-visibility gear, perhaps through a discount on motorcycle insurance.
- Start small:
    - Encourage the use of high-visibility gear in low-light conditions, such as in bad weather or at night.
    - Promote retroreflective materials, as these seem to be better accepted than high-visibility, fluorescent shades of yellow-green, orange-red, and red.
    - Promote aftermarket reflective materials such as stickers and arm bands that are affordable additions to existing gear.
    - Target segments of riders such as young riders who are "less set in their ways." The acceptance of high-visibility gear may require a generational change.
    - Educate new riders about the benefits of high-visibility apparel in motorcycle safety courses.
- Use peer-to-peer promotions by having people wear it and talk about it with their acquaintances.
- Educate motorcycle and scooter shop owners about the safety benefits of high-visibility gear.
- Avoid PSAs that are too direct or use a "tacky slogan." As expressed by one rider, "Motorcycle riders do not want to be told what to do."

From the motorcycle riders' perspective, how can high-visibility gear be improved?
Focus group participants thought there is much room for improvement in the visual design of high-visibility apparel. While the ANSI/ISEA 107-2015 standard for high-visibility safety apparel specifies only three colors (fluorescent yellow-green, fluorescent orange-red, and fluorescent red) that can be used for workplace safety apparel, many participants thought these

colors were too limiting. Participants wanted to be able to choose high-visibility colors other than the bright yellow seen most frequently on high-visibility motorcycle gear. While bright orange was acceptable to some riders who did not like yellow, other participants suggested bright blue, turquoise, pink, and purple could also be used as high-visibility colors and would be more acceptable to them.

Customization was another theme that emerged in the discussions. Several participants mentioned they would like to have a choice in high-visibility designs for their gear. Many riders thought having smaller areas of high-visibility color would be more appealing than large, solid areas of high-visibility color that cover nearly the entire surface of the gear.

Riders were less concerned about reducing the area of retroreflective material in apparel because in daylight these materials look gray, which was acceptable. Some participants wanted reflective elements to be less obvious in daylight. They suggested incorporating retroreflective material into interesting design elements, such as brand logos, or images of flames and skulls.

Regarding the sample gear shown to the groups, especially the rain gear, participants suggested there should be more reflective material, and that more attention should be given to the optimal placement of high-visibility colors and retroreflective material to make it more effective. For example, placing high-visibility colors on the outer sides of the arms and legs and in the upper part of jackets could increase visibility. Riders also noted (especially those who ride sport motorcycles) that consideration should be given to differences in riding posture for different motorcycle types, to ensure that high-visibility elements can be seen by drivers.

4.4 DIFFERENCES AMONG LOCATIONS

The participant's location, compared to the participant's sex or type of motorcycle ridden, seemed to have a weaker influence on willingness to use high-visibility gear. The differences that did emerge by location appeared related to weather patterns, traffic laws, and cultural differences. Rain is less common in California, and the Los Angeles focus groups expressed more concern about riding in the rain than participants from other locations. The Californian participants said they almost always avoid riding if there is rain. Also, due to the lack of rain, motorcyclists in California, perhaps more than in other locations, are exposed to dryer and therefore dustier roads that produce a lot of airborne particulate matter; after rain, the roads can become very slippery. Although Californian participants said they are not likely to ride in the rain, they do see an advantage to wearing high-visibility rain gear when it does rain. California also differs from the other locations in that lane-splitting is legal; riders there expressed concern that lane-splitting presents risks and that being visible to motorists, when approaching vehicles from behind and passing them at close distances, is especially critical. An interesting impression was that the Californian participants, compared to the other locations, seemed more concerned or focused on having an image or look that is noticed and appreciated by others. In this sense, the notion of conspicuous gear or clothing was not so much related to safety, but to style and fashion.

Texas and California have relatively wide temperature shifts throughout the course of the day. Participants in these States said they change their gear daily or more than once a day, to adjust to

temperature change. The Michigan and Maryland groups change gear more in accordance with seasonal changes. Participants indicated that to be acceptable, high-visibility gear would need to be comfortable and adaptable to these temperature changes.

5 DISCUSSION

Study Limitations

This study was a qualitative exploration of the attitudes, beliefs, and behaviors of motorcycle operators and passengers toward high-visibility motorcycle gear and apparel. The study consisted of 18 focus groups conducted in California, Maryland, Michigan, and Texas. The States were selected to obtain input from riders across different regions of the country. Separate focus groups were conducted for male riders of cruiser, touring and sport motorcycles; women riders of mixed motorcycle types; scooter riders (men and women); and women passengers of mixed motorcycle type. Thus, the study sought perspectives from a range of motorcyclists. However, the sample cannot be construed as being representative of a population. In addition, the inability to recruit a sufficient number of women who ride cruisers, touring and sport motorcycles resulted in limited representation of these groups. The information collected is nonetheless valuable in identifying themes and issues to be explored and investigated. Understanding the motivations and barriers to use high-visibility gear requires additional research.

Implications of Findings for Safety Policy and State-Sponsored Safety Programs

Most focus group riders expressed belief that a common cause of motorcycle crashes involving other vehicles is a driver who fails to see the motorcycle. The importance of this safety problem was widely recognized by the participants; however, the participants did not universally accept the potential benefits of high-visibility gear as a countermeasure to this problem. This finding is interesting, considering that motorcycle manufacturers have incorporated changes to enhance the conspicuity of their motorcycles, and policy changes have required changes to increase visibility. For example, since 1979, most new motorcycles have headlights that automatically turn on when the vehicle is started; and 24 States require daytime running headlights for motorcycles manufactured after a given date (MSF, 2014). In addition, many manufacturers use modulating headlights to enhance motorcycle visibility. Yet, motorcycle conspicuity remains a factor in multi-vehicle motorcycle crashes, and many riders do not consider high-visibility gear as a safety measure.

Manufacturers and equipment makers could provide leadership in this area by incorporating high-visibility material into their branded gear. Some focus group participants predicted that wearing high-visibility gear would become more acceptable if it is more widely available and more widely used.

Several participants said State law prevents them from using some kinds of conspicuity-enhancing technologies on their motorcycles, such as flashing lights, which suggests that reviewing these law is necessary to understand their rationale and to identify areas for improvement.

The participants expressed concern about driver distraction as an important reason for drivers' "not seeing" motorcycles. This concern should be explored further to determine strategies for improving driver education regarding motorcycle detection and enforcement of distraction laws.

6 CONCLUSIONS

Eighteen focus groups with 137 motorcycle riders in California, Maryland, Michigan, and Texas were conducted to explore motorcyclists' attitudes toward wearing high-visibility gear to increase conspicuity. In most groups, only one or two participants said they regularly wear high-visibility gear.

Based on the focus group discussions, several factors emerged as barriers to motorcyclists' use of high-visibility gear. The most important involves the appearance of the high-visibility gear. It is judged as unappealing by some riders, and many riders are concerned that the look or style of the gear does not fit in with their riding culture. These factors work against the acceptance of high-visibility gear, even though many riders believe such gear may be effective for increasing conspicuity. Many participants thought that motorcycle-riding culture would have to change for riders to adopt high-visibility gear, due to the association of novice riders and older riders with high-visibility gear.

Another barrier to use of high-visibility gear is riders' skepticism that high-visibility apparel provides enough of a safety benefit to warrant its use and cost. Evidence that demonstrates the safety benefits of high-visibility gear is important to convincing motorcyclists they would personally benefit from using it.

In addition to adverse feelings about high-visibility gear itself, many participants expressed the belief that high-visibility gear would not improve safety, largely because of the perception that motorists are distracted anyway. In fact, several participants suggested that the onus should be on drivers to look for motorcyclists.

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APPENDIX A: MODERATOR'S GUIDE
FOCUS GROUP MODERATOR GUIDE

Informed Consent (5 minutes)

Have each participant read and complete the informed consent.

Collect a completed informed consent from each participant, verify that the form was completed properly and store in a folder with the other completed consent forms.

Distribute name tags/tents with first names for participants.

Introduction and Ground Rules (5 minutes)

Introduce yourself and the note taker

You have been selected to participate in this focus group because you indicated that you are a regular motorcycle (or scooter *when applicable*) rider (*or passenger when applicable*). We are interested in learning about your experience and opinions as a motorcycle rider (*or passenger when applicable*). The information we gather today will help the Department of Transportation in its exploration of motorcycle riding apparel and gear.

A quick note about logistics:
- This session will last about 90 minutes.
- Refreshments have been provided, please help yourself.
- The bathrooms are located …
- Please turn off your cell phones

Have any of you have taken part in a focus group before?

Explain that focus groups are used more and more to understand different opinions and perspectives. For example, focus groups are used in marketing research.

Before we begin our discussion, I will review why we're all here and how we hope this group will work.

a. Our objective is to understand the point of view of motorcyclists on a range of issues. One of the specific topics we will explore is riding gear and apparel. As we go through the session, I will guide us along various topics, but you will be the **experts** and will doing most the talking.

b. Focus groups have ground rules or etiquette that we follow
   i. We need to hear about <u>your</u> feelings and opinions. We are not here to reach consensus, but to hear and discuss a range of views. There is no "right" or "wrong" answer.
   ii. We want to encourage cross talk in the group, not to and from moderator; the moderator will merely guide the discussion to cover the topics we need to hear about.
   iii. We want to give everyone the opportunity to speak – it is important to hear from everyone.
   iv. We won't be judging your responses.
   v. The session is being recorded to allow us to pay full attention during the session and for us to supplement our notes later.
   vi. Your participation is completely voluntary and you may stop at any time without explanation.
   vii. We hope that you will feel free to be completely honest in this discussion. Your name and any other identifying information will not be used in any report that we prepare about these focus groups.
   viii. Please respect the privacy of the other people in this group by not discussing what is said here with anyone outside the group or in public.

Self-Introductions and Ice Breaker (5 minutes)

Round of introductions of participants (first names) –

> To get started, I'd like to go around the room and ask each of you to introduce yourself, using your first name only, and tell us how long you have been riding.

Go around to each person in turn.

Focus Group Topics (Question Path)
As the discussion begins, allow time for people to think about their answers. Move to the next topic when people start providing repetitive information or going too far off topic.

Discussion Topic: Typical Riding Gear (Form A) (10 minutes)
I'd like to hear about what you typically wear when riding. For the purpose of our discussion today, whenever we talk about gear or apparel we mean anything you might wear when you ride your motorcycle. This can include: a helmet, jacket, gloves, boots, a vest, leather, denim, etc.

We are handing out a questionnaire that lists gear with examples that riders may wear. For each item, please indicate whether you never, rarely, sometimes, usually, or always wear that item when riding. Please note, these are just examples, your gear may look different.

Individual Rating Responses: *Form A, Typical Riding Gear*

> *Pass out Form A and explain that we would like to get everyone to complete the forms before we continue with the general discussion. Allow participants 2 minutes to fill out form.*

- What was some of the apparel that you marked on your form?

  (Go around the group and get individual responses to get a general understanding of how much gear each person uses. If a participant asks questions, or offers reasons or qualifications about what they selected, follow up to get an understanding of the particular issue, then move on)

Discussion Topic: Trip Factors on Gear Choice (Form B) (10 minutes)
We are going to pass out a second form that asks about the reasons why you may wear certain apparel. Please circle yes or no for each factor to indicate whether that factor is important when you choose gear before a ride. Then, rank the three most important reasons from one to three. Feel free to write down any other reasons that are not listed.

Individual Rating Responses: *Form B, Factors in Choosing Gear*
Pass out Form B. Allow participants 2 minutes to fill out the form.

- What were your top 3 reasons why you wear your particular apparel?

- Are there any reasons why you wear certain apparel that were not listed?

- Did anyone circle "no" to all of these factors? If so, why?

Discussion Topic: Purchasing Factors (Form C) (10 minutes)
We are going to hand out another form, this time asking you what you consider when buying motorcycle gear. Again, once you have finished, please rank your top 3 purchasing factors you circled "yes" to.

Individual Rating Responses: Form C, Factors in purchasing gear
Pass out Form C. Allow participants 2 minutes to fill out form.

- How often do you purchase new riding gear?

- What are some of the reasons you buy new gear?

- Where do you usually buy riding apparel?
  - Online? In store? Given to you by a friend?

For those who indicated they don't purchase:

- Why have you not purchased riding gear or apparel?

- What would influence you to purchase new riding gear?

Discussion Topic: Perception of Conspicuity as a Safety Issue (10 minutes)
One common factor linked to motorcycle crashes is rider conspicuity or visibility, meaning whether other drivers or motorcycle riders can see you.

- In your experience, is motorcycle rider conspicuity a safety problem?
    - Why or why not? (Allow one or two stories and probe to understand specific traffic scenarios were incident occurred)

If there is a strong consensus in the group that conspicuity, (being seen) is NOT an issue, then probe:

- Can you think of any specific times when a vehicle didn't see you?
- Possible follow-up question:
    - Do you remember where you were?
    - Was it during the day time or was it at night?
    - What were you doing at the time (e.g. making a turn, changing lanes, etc.)?

- When you are making gear or apparel purchasing decisions, tell me how much you consider safety (such as being seen by other drivers, or materials that can protect you in a crash)?

Discussion Topic: Use of High-Visibility Gear (15 minutes)
Some people wear high-visibility clothing in an effort to be conspicuous (or visible) to other drivers. High-visibility apparel is anything that has a reflective quality or has a fluorescent color that makes the apparel stand out and easily distinguishable from the background. This could be a vest, reflective stickers on your helmet, a t-shirt, jacket, pants, or gloves.

Show a few examples of high-visibility apparel using PowerPoint (go through all examples) and ask/discuss the following:

- How familiar are you with high-visibility gear or apparel?

- Do you know riders who wear this type of gear or apparel?
    - What do you think drives their decisions to wear high-visibility gear?

- On the other hand, do you know riders who avoid using this type of gear?

- Have you, or do you use this type of gear?

- Do you believe that drivers are more likely to see motorcycle riders who are wearing high-visibility gear or apparel?
    - Why or why not?
    - Does wearing high-visibility gear make you safer?

- Under what circumstances would you wear high-visibility gear or apparel?
    - (Only at night? Only in the rain? All the time?)

- What are some circumstances when you might choose not to wear high-visibility gear or apparel?

Discussion Topic: High-Visibility Gear Product Demonstration (10 minutes)
Allow participants 2 minutes to review (touch, lift, etc.) the examples (jackets, vests, pants, rain gear, add-on stickers) of retro-reflective and high-visibility gear.

Step through specific examples of retro-reflective and high-visibility gear and ask the following questions:

- Is there something that you like about this item?
    - (Price point, looks like good quality, the aesthetic, the colors, the brand, style)

- Is there something that you dislike about this item?
    - (Price point, looks like good quality, the aesthetic, the colors, the brand, style)

- Could you see yourself buying this item or a similar item in the future?

- Do you know other riders who use this type of gear or apparel?

- Would wearing this item make you feel safer on the road?

- Do you think wearing this item would improve your safety?

- After seeing some of these examples, would you wear high-visibility gear?
    - If yes, what do you like about it?

- Which of these items would you wear?
    - If none, why not?

- For you, what would be your concerns about high-visibility apparel?
    - Not fitting in with your look or style?
    - Becoming a target?
    - Feel like it won't make a difference?

Discussion Topic: How to Promote Use of High-Visibility Gear (10 minutes)

- Do you see any benefits to using high-visibility gear?
    - Will it improve your safety?

- Are there reasons why you would choose not to wear high-visibility gear?

- Have you ever seen an ad that promotes the use of high-visibility apparel among motorcyclists?
    - Where did you see or hear it?
    - Where would be a good place to put an ad like that?

- What would convince you to wear high-visibility gear or apparel?

- How would you convince other motorcycle riders to wear high-visibility gear or apparel?

Discussion Topic: Final Comments/Other Ideas (3 minutes)

Does anyone have anything else they would like to mention about motorcycles and high-visibility riding apparel before we conclude the focus group? Are there any issues that we have not touched on?

Closing Remarks and Incentive Distribution (2 minutes)

Thank you for your time. What we have heard and learned about today will help the Department of Transportation and States understand ways to help promote motorcycle safety.

Do you have any questions about the study or what was discussed today?

Distribute the incentive and have each participant sign a receipt to indicate that they received the honorarium.

APPENDIX B: RESULTS ON TYPICAL RIDING GEAR (FORM A)

Results by Rider Type

	Never	Rarely	Sometimes	Usually	Always	No Response
Helmet						
Cruiser	0.0%	0.0%	7.4%	7.4%	77.8%	7.4%
Sport	0%	0%	0%	13%	87%	0.0%
Touring	0%	3%	9%	12%	58%	18.2%
Scooter	0%	0%	0%	14%	71%	14.3%
Women riders	0%	0%	0%	3%	91%	6.1%
Women passengers	0%	0%	0%	0%	100%	0.0%
Leather Jacket						
Cruiser	7%	7%	41%	33%	7%	3.7%
Sport	29%	16%	29%	10%	16%	0.0%
Touring	18%	15%	36%	27%	3%	0.0%
Scooter	14%	29%	43%	0%	14%	0.0%
Women riders	12%	6%	39%	21%	15%	6.1%
Women passengers	20%	0%	20%	20%	40%	0.0%
Armored jacket						
Cruiser	41%	11%	22%	11%	7%	7.4%
Sport	16%	10%	16%	29%	26%	3.2%
Touring	36%	6%	27%	18%	12%	0.0%
Scooter	57%	0%	14%	14%	14%	0.0%
Women riders	27%	9%	24%	18%	18%	3.0%
Women passengers	60%	0%	40%	0%	0%	0.0%
Textile jacket (no armor)						
Cruiser	48%	11%	26%	0%	0%	14.8%
Sport	41%	18%	36%	0%	5%	0.0%
Touring	52%	18%	18%	9%	0%	3.0%
Scooter	43%	43%	0%	14%	0%	0.0%
Women riders	30%	18%	30%	12%	0%	9.1%
Women passengers	20%	60%	0%	0%	20%	0.0%
Denim jacket						
Cruiser	52%	11%	30%	4%	0%	3.7%
Sport	87%	0%	10%	0%	3%	0.0%
Touring	76%	9%	15%	0%	0%	0.0%
Scooter	29%	14%	43%	14%	0%	0.0%
Women riders	48%	9%	12%	21%	0%	9.1%
Women passengers	20%	20%	40%	0%	20%	0.0%
Leather vest						
Cruiser	70%	4%	7%	7%	4%	7.4%

	Never	Rarely	Sometimes	Usually	Always	No Response
Sport	90%	0%	3%	0%	3%	3.2%
Touring	39%	12%	24%	15%	9%	0.0%
Scooter	71%	14%	0%	0%	0%	14.3%
Women riders	52%	3%	21%	9%	15%	0.0%
Women passengers	60%	0%	40%	0%	0%	0.0%
Armored vest						
Cruiser	81%	0%	11%	0%	0%	7.4%
Sport	65%	13%	13%	10%	0%	0.0%
Touring	91%	6%	0%	3%	0%	0.0%
Scooter	86%	0%	0%	0%	0%	14.3%
Women riders	73%	6%	3%	3%	6%	9.1%
Women passengers	60%	40%	0%	0%	0%	0.0%
Textile (no armor) vest						
Cruiser	89%	0%	0%	0%	0%	11.1%
Sport	91%	5%	5%	0%	0%	0.0%
Touring	97%	0%	3%	0%	0%	0.0%
Scooter	57%	0%	14%	14%	0%	14.3%
Women riders	73%	9%	6%	0%	3%	9.1%
Women passengers	80%	20%	0%	0%	0%	0.0%
Denim vest						
Cruiser	67%	0%	11%	7%	4%	11.1%
Sport	95%	0%	5%	0%	0%	0.0%
Touring	91%	0%	6%	3%	0%	0.0%
Scooter	57%	29%	0%	0%	0%	14.3%
Women riders	70%	3%	15%	6%	3%	3.0%
Women passengers	60%	0%	40%	0%	0%	0.0%
Leather pants						
Cruiser	70%	7%	11%	4%	0%	7.4%
Sport	58%	13%	19%	6%	0%	3.2%
Touring	70%	9%	18%	3%	0%	0.0%
Scooter	71%	14%	14%	0%	0%	0.0%
Women riders	64%	12%	9%	12%	0%	3.0%
Women passengers	60%	0%	20%	0%	20%	0.0%
Armored pants						
Cruiser	70%	4%	11%	0%	7%	7.4%
Sport	50%	14%	27%	5%	5%	0.0%
Touring	76%	0%	12%	6%	6%	0.0%
Scooter	71%	0%	14%	14%	0%	0.0%
Women riders	64%	3%	21%	6%	0%	6.1%
Women passengers	60%	40%	0%	0%	0%	0.0%
Textile (no armor) pants						

	Never	Rarely	Sometimes	Usually	Always	No Response
Cruiser	67%	4%	15%	4%	0%	11.1%
Sport	59%	5%	32%	5%	0%	0.0%
Touring	85%	3%	12%	0%	0%	0.0%
Scooter	29%	29%	43%	0%	0%	0.0%
Women riders	55%	15%	18%	3%	0%	9.1%
Women passengers	80%	0%	20%	0%	0%	0.0%
Denim pants						
Cruiser	4%	4%	7%	11%	67%	7.4%
Sport	6%	0%	23%	42%	29%	0.0%
Touring	18%	3%	33%	15%	30%	0.0%
Scooter	14%	14%	0%	57%	14%	0.0%
Women riders	3%	0%	6%	45%	45%	0.0%
Women passengers	40%	100%	0%	40%	20%	0.0%
Chaps						
Cruiser	67%	7%	19%	0%	0%	7%
Sport	97%	3%	0%	0%	0%	0.0%
Touring	52%	9%	33%	3%	3%	0.0%
Scooter	100%	0%	0%	0%	0%	0.0%
Women riders	52%	3%	27%	6%	0%	12.1%
Women passengers	80%	0%	0%	20%	0%	0.0%
Rain gear						
Cruiser	48%	11%	33%	4%	0%	3.7%
Sport	35%	26%	39%	0%	0%	0.0%
Touring	18%	24%	36%	12%	9%	0.0%
Scooter	14%	14%	57%	14%	0%	0.0%
Women riders	27%	21%	42%	0%	3%	6.1%
Women passengers	40%	20%	40%	0%	0%	0.0%
High-visibility gear						
Cruiser	56%	22%	19%	4%	0%	0.0%
Sport	23%	29%	13%	13%	19%	3.2%
Touring	48%	15%	15%	12%	6%	3.0%
Scooter	29%	29%	0%	29%	14%	0.0%
Women riders	21%	9%	33%	21%	9%	6.1%
Women passengers	40%	0%	20%	0%	40%	0.0%
Riding gloves						
Cruiser	0%	7%	22%	4%	63%	3.7%
Sport	0%	0%	10%	6%	84%	0.0%
Touring	0%	3%	3%	39%	55%	0.0%
Scooter	0%	29%	29%	29%	14%	0.0%
Women riders	0%	0%	9%	24%	64%	3.0%
Women passengers	20%	0%	20%	0%	60%	0.0%

	Never	Rarely	Sometimes	Usually	Always	No Response
Riding boots						
Cruiser	11%	7%	11%	19%	44%	7.4%
Sport	3%	13%	16%	32%	35%	0.0%
Touring	6%	6%	12%	30%	45%	0.0%
Scooter	29%	14%	29%	14%	14%	0.0%
Women riders	3%	0%	15%	33%	48%	0.0%
Women passengers	40%	0%	0%	20%	40%	0.0%
Eye protection						
Cruiser	15%	0%	4%	15%	63%	3.7%
Sport	39%	10%	3%	0%	48%	0.0%
Touring	18%	0%	9%	3%	70%	0.0%
Scooter	0%	0%	0%	29%	71%	0.0%
Women riders	24%	9%	18%	6%	39%	3.0%
Women passengers	40%	0%	0%	20%	40%	0.0%

APPENDIX C: RESULTS ON FACTORS IN CHOOSING GEAR (FORM B)

Results by Rider Type

	Yes	No	Top Ranking	No Response
Weather Conditions				
Cruiser	96.3%	3.7%	88.9%	0.0%
Sport	100.0%	0.0%	87.1%	0.0%
Touring	100.0%	0.0%	81.8%	0.0%
Scooter	100.0%	0.0%	57.1%	0.0%
Women riders	93.9%	3.0%	84.8%	3.0%
Women passengers	100.0%	0.0%	60.0%	0.0%
Length of Ride				
Cruiser	81.5%	18.5%	63.0%	0.0%
Sport	80.6%	16.1%	58.1%	3.2%
Touring	93.9%	6.1%	51.5%	0.0%
Scooter	100.0%	0.0%	42.9%	0.0%
Women riders	75.8%	21.2%	36.4%	3.0%
Women passengers	80.0%	20.0%	40.0%	0.0%
Whether riding alone or with others				
Cruiser	14.8%	85.2%	0.0%	0.0%
Sport	29.0%	71.0%	0.0%	0.0%
Touring	9.1%	90.9%	0.0%	0.0%
Scooter	28.6%	57.1%	0.0%	14.3%
Women riders	24.2%	72.7%	3.0%	3.0%
Women passengers	80.0%	20.0%	0.0%	0.0%
Time of day				
Cruiser	77.8%	22.2%	66.7%	0.0%
Sport	58.1%	41.9%	22.6%	0.0%
Touring	69.7%	30.3%	42.4%	0.0%
Scooter	100.0%	0.0%	42.9%	0.0%
Women riders	78.8%	18.2%	54.5%	3.0%
Women passengers	80.0%	20.0%	40.0%	0.0%
If it is an organized ride				
Cruiser	3.7%	96.3%	0.0%	0.0%
Sport	25.8%	74.2%	3.2%	0.0%
Touring	21.2%	78.8%	0.0%	0.0%
Scooter	28.6%	57.1%	0.0%	14.3%
Women riders	24.2%	75.8%	3.0%	0.0%
Women passengers	40.0%	60.0%	0.0%	0.0%

	Yes	No	Top Ranking	No Response
If you have been, or will be drinking				
Cruiser	7.4%	92.6%	0.0%	0.0%
Sport	22.6%	71.0%	0.0%	6.5%
Touring	3.0%	90.9%	0.0%	6.1%
Scooter	14.3%	57.1%	0.0%	28.6%
Women riders	15.2%	78.8%	0.0%	6.1%
Women passengers	20.0%	80.0%	20.0%	0.0%
Local laws				
Cruiser	11.1%	88.9%	3.7%	0.0%
Sport	32.3%	67.7%	3.2%	0.0%
Touring	54.5%	45.5%	21.2%	0.0%
Scooter	42.9%	42.9%	0.0%	14.3%
Women riders	36.4%	60.6%	12.1%	3.0%
Women passengers	80.0%	20.0%	0.0%	0.0%
The kinds of roads you'll be riding on				
Cruiser	51.9%	48.1%	33.3%	0.0%
Sport	83.9%	16.1%	45.2%	0.0%
Touring	48.5%	51.5%	24.2%	0.0%
Scooter	71.4%	28.6%	14.3%	0.0%
Women riders	75.8%	24.2%	33.3%	0.0%
Women passengers	60.0%	40.0%	0.0%	0.0%
The type of motorcycle you will be riding				
Cruiser	40.7%	59.3%	11.1%	0.0%
Sport	67.7%	32.3%	25.8%	0.0%
Touring	45.5%	54.5%	12.1%	0.0%
Scooter	57.1%	42.9%	0.0%	0.0%
Women riders	42.4%	57.6%	9.1%	0.0%
Women passengers	60.0%	40.0%	20.0%	0.0%
The type of traffic you expect				
Cruiser	29.6%	70.4%	14.8%	0.0%
Sport	64.5%	35.5%	29.0%	0.0%
Touring	42.4%	57.6%	24.2%	0.0%
Scooter	42.9%	57.1%	14.3%	0.0%
Women riders	63.6%	36.4%	12.1%	0.0%
Women passengers	60.0%	40.0%	0.0%	0.0%
When riding as a passenger				
Cruiser	11.1%	88.9%	3.7%	0.0%

	Yes	No	Top Ranking	No Response
Sport	16.1%	83.9%	0.0%	0.0%
Touring	6.1%	78.8%	0.0%	15.2%
Scooter	14.3%	71.4%	0.0%	14.3%
Women riders	39.4%	60.6%	6.1%	0.0%
Women passengers	60.0%	40.0%	0.0%	0.0%

APPENDIX D: RESULTS ON FACTORS IN PURCHASING GEAR (FORM C)

Results by Rider Type.

	Not Important	Less Important	Neutral	Important	Very Important	Top Ranking	No Response
Cost							
Cruiser	14.8%	7.4%	11.1%	37.0%	25.9%	37.0%	3.7%
Sport	12.9%	6.5%	9.7%	45.2%	25.8%	38.7%	0.0%
Touring	6.1%	9.1%	18.2%	45.5%	21.2%	15.2%	0.0%
Scooter	14.3%	14.3%	28.6%	42.9%	0.0%	0.0%	0.0%
Women riders	9.1%	9.1%	36.4%	27.3%	15.2%	21.2%	3.0%
Women passengers	0.0%	0.0%	0.0%	20.0%	80.0%	20.0%	0.0%
Sales, discounts or special deal							
Cruiser	11.1%	11.1%	25.9%	29.6%	14.8%	7.4%	7.4%
Sport	6.5%	16.1%	19.4%	32.3%	22.6%	0.0%	3.2%
Touring	0.0%	6.1%	42.4%	36.4%	12.1%	12.1%	3.0%
Scooter	0.0%	14.3%	28.6%	28.6%	14.3%	0.0%	14.3%
Women riders	6.1%	12.1%	30.3%	30.3%	18.2%	9.1%	3.0%
Women passengers	0.0%	0.0%	0.0%	40.0%	40.0%	0.0%	20.0%
Crash protection							
Cruiser	7.4%	3.7%	14.8%	33.3%	33.3%	40.7%	7.4%
Sport	0.0%	0.0%	3.2%	16.1%	80.6%	83.9%	0.0%
Touring	3.0%	9.1%	15.2%	24.2%	45.5%	21.2%	3.0%
Scooter	0.0%	0.0%	14.3%	0.0%	85.7%	28.6%	0.0%
Women riders	3.0%	0.0%	6.1%	21.2%	63.6%	33.3%	6.1%
Women passengers	0.0%	0.0%	20.0%	0.0%	80.0%	40.0%	0.0%
Crash avoidance							
Cruiser	11.1%	14.8%	33.3%	22.2%	11.1%	3.7%	7.4%
Sport	6.5%	6.5%	32.3%	25.8%	29.0%	0.0%	0.0%
Touring	9.1%	9.1%	30.3%	27.3%	24.2%	0.0%	0.0%
Scooter	0.0%	28.6%	0.0%	14.3%	57.1%	28.6%	0.0%
Women riders	9.1%	0.0%	27.3%	24.2%	36.4%	0.0%	3.0%
Women passengers	20.0%	0.0%	0.0%	20.0%	60.0%	40.0%	0.0%
Increased visibility							
Cruiser	7.4%	0.0%	33.3%	33.3%	18.5%	7.4%	7.4%
Sport	4.5%	13.6%	31.8%	27.3%	22.7%	4.5%	0.0%
Touring	6.1%	12.1%	30.3%	27.3%	24.2%	3.0%	0.0%
Scooter	0.0%	14.3%	0.0%	0.0%	85.7%	42.9%	0.0%
Women riders	6.1%	0.0%	21.2%	27.3%	39.4%	12.1%	6.1%
Women passengers	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%

	Not Important	Less Important	Neutral	Important	Very Important	Top Ranking	No Response
State law requires it							
Cruiser	18.5%	3.7%	33.3%	14.8%	18.5%	3.7%	11.1%
Sport	35.5%	9.7%	22.6%	16.1%	16.1%	3.2%	0.0%
Touring	15.2%	3.0%	39.4%	15.2%	27.3%	3.0%	0.0%
Scooter	0.0%	0.0%	14.3%	0.0%	85.7%	0.0%	0.0%
Women riders	6.1%	9.1%	27.3%	18.2%	36.4%	6.1%	3.0%
Women passengers	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
It is DOT certified							
Cruiser	11.1%	0.0%	14.8%	25.9%	40.7%	11.1%	7.4%
Sport	3.2%	0.0%	12.9%	41.9%	41.9%	12.9%	0.0%
Touring	15.2%	3.0%	18.2%	33.3%	30.3%	9.1%	0.0%
Scooter	0.0%	0.0%	14.3%	28.6%	57.1%	14.3%	0.0%
Women riders	6.1%	0.0%	18.2%	18.2%	57.6%	15.2%	0.0%
Women passengers	0.0%	0.0%	0.0%	0.0%	100.0%	60.0%	0.0%
Other certifications							
Cruiser	25.9%	3.7%	37.0%	22.2%	3.7%	0.0%	7.4%
Sport	9.7%	6.5%	22.6%	35.5%	25.8%	3.2%	0.0%
Touring	33.3%	9.1%	33.3%	12.1%	9.1%	0.0%	3.0%
Scooter	14.3%	28.6%	14.3%	14.3%	28.6%	0.0%	0.0%
Women riders	39.4%	21.2%	24.2%	6.1%	9.1%	0.0%	0.0%
Women passengers	20.0%	20.0%	0.0%	40.0%	20.0%	0.0%	0.0%
It matches the gear of another person/people in my riding group							
Cruiser	77.8%	7.4%	7.4%	0.0%	0.0%	0.0%	7.4%
Sport	71.0%	16.1%	6.5%	3.2%	3.2%	0.0%	0.0%
Touring	66.7%	15.2%	9.1%	6.1%	3.0%	0.0%	0.0%
Scooter	71.4%	0.0%	28.6%	0.0%	0.0%	0.0%	0.0%
Women riders	72.7%	12.1%	9.1%	0.0%	0.0%	0.0%	6.1%
Women passengers	20.0%	40.0%	0.0%	0.0%	40.0%	20.0%	0.0%
It matches the look of my motorcycle							
Cruiser	33.3%	18.5%	14.8%	14.8%	11.1%	7.4%	7.4%
Sport	3.2%	12.9%	38.7%	35.5%	9.7%	6.5%	0.0%
Touring	33.3%	12.1%	18.2%	27.3%	9.1%	3.0%	0.0%
Scooter	14.3%	0.0%	28.6%	57.1%	0.0%	0.0%	0.0%
Women riders	27.3%	15.2%	21.2%	21.2%	12.1%	3.0%	3.0%
Women passengers	20.0%	40.0%	20.0%	0.0%	20.0%	20.0%	0.0%
I like the way I look in it							
Cruiser	7.4%	7.4%	25.9%	37.0%	14.8%	7.4%	7.4%
Sport	9.7%	6.5%	25.8%	38.7%	19.4%	9.7%	0.0%
Touring	24.2%	6.1%	6.1%	39.4%	24.2%	9.1%	0.0%

	Not Important	Less Important	Neutral	Important	Very Important	Top Ranking	No Response
Scooter	0.0%	28.6%	14.3%	42.9%	14.3%	0.0%	0.0%
Women riders	6.1%	0.0%	27.3%	39.4%	27.3%	15.2%	0.0%
Women passengers	0.0%	20.0%	0.0%	20.0%	60.0%	40.0%	0.0%
Someone else likes the way I look in it							
Cruiser	51.9%	14.8%	22.2%	0.0%	3.7%	0.0%	7.4%
Sport	51.6%	16.1%	25.8%	3.2%	3.2%	0.0%	0.0%
Touring	57.6%	18.2%	18.2%	3.0%	3.0%	0.0%	0.0%
Scooter	57.1%	14.3%	0.0%	28.6%	0.0%	0.0%	0.0%
Women riders	45.5%	9.1%	15.2%	15.2%	9.1%	0.0%	6.1%
Women passengers	40.0%	0.0%	20.0%	20.0%	20.0%	0.0%	0.0%
Comfort							
Cruiser	3.7%	0.0%	3.7%	25.9%	59.3%	48.1%	7.4%
Sport	0.0%	0.0%	6.5%	22.6%	71.0%	51.6%	0.0%
Touring	0.0%	0.0%	3.0%	21.2%	75.8%	24.2%	0.0%
Scooter	0.0%	0.0%	0.0%	42.9%	57.1%	14.3%	0.0%
Women riders	0.0%	0.0%	3.0%	27.3%	69.7%	39.4%	0.0%
Women passengers	0.0%	20.0%	20.0%	40.0%	20.0%	0.0%	0.0%
Weather resistance							
Cruiser	11.1%	3.7%	18.5%	40.7%	18.5%	3.7%	7.4%
Sport	6.5%	0.0%	6.5%	51.6%	35.5%	12.9%	0.0%
Touring	0.0%	0.0%	6.1%	48.5%	45.5%	9.1%	0.0%
Scooter	0.0%	14.3%	0.0%	28.6%	57.1%	14.3%	0.0%
Women riders	0.0%	0.0%	3.0%	42.4%	54.5%	21.2%	0.0%
Women passengers	0.0%	0.0%	20.0%	40.0%	40.0%	20.0%	0.0%
Durability							
Cruiser	3.7%	0.0%	0.0%	44.4%	44.4%	18.5%	7.4%
Sport	0.0%	0.0%	3.2%	32.3%	64.5%	38.7%	0.0%
Touring	0.0%	3.0%	6.1%	42.4%	45.5%	18.2%	3.0%
Scooter	0.0%	0.0%	0.0%	42.9%	57.1%	14.3%	0.0%
Women riders	0.0%	0.0%	9.1%	27.3%	60.6%	12.1%	3.0%
Women passengers	0.0%	0.0%	20.0%	20.0%	60.0%	40.0%	0.0%
Machine washable							
Cruiser	14.8%	7.4%	37.0%	29.6%	3.7%	0.0%	7.4%
Sport	16.1%	29.0%	19.4%	22.6%	12.9%	0.0%	0.0%
Touring	21.2%	15.2%	30.3%	18.2%	15.2%	0.0%	0.0%
Scooter	0.0%	42.9%	0.0%	42.9%	14.3%	0.0%	0.0%
Women riders	18.2%	3.0%	45.5%	15.2%	15.2%	0.0%	3.0%
Women passengers	0.0%	0.0%	60.0%	20.0%	20.0%	0.0%	0.0%
Brand/logo							

	Not Important	Less Important	Neutral	Important	Very Important	Top Ranking	No Response
Cruiser	37.0%	14.8%	33.3%	7.4%	0.0%	0.0%	7.4%
Sport	32.3%	16.1%	22.6%	19.4%	6.5%	3.2%	3.2%
Touring	27.3%	12.1%	33.3%	24.2%	3.0%	3.0%	0.0%
Scooter	28.6%	42.9%	14.3%	14.3%	0.0%	0.0%	0.0%
Women riders	36.4%	15.2%	30.3%	9.1%	6.1%	0.0%	3.0%
Women passengers	20.0%	40.0%	20.0%	20.0%	0.0%	0.0%	0.0%
Style							
Cruiser	14.8%	11.1%	11.1%	51.9%	3.7%	3.7%	7.4%
Sport	12.9%	3.2%	22.6%	51.6%	9.7%	3.2%	0.0%
Touring	15.2%	9.1%	21.2%	27.3%	24.2%	3.0%	3.0%
Scooter	0.0%	0.0%	14.3%	71.4%	0.0%	0.0%	14.3%
Women riders	0.0%	3.0%	33.3%	42.4%	21.2%	6.1%	0.0%
Women passengers	0.0%	20.0%	0.0%	40.0%	40.0%	0.0%	0.0%
Color							
Cruiser	7.4%	7.4%	29.6%	40.7%	7.4%	3.7%	7.4%
Sport	3.2%	12.9%	19.4%	58.1%	6.5%	3.2%	0.0%
Touring	9.1%	6.1%	12.1%	42.4%	30.3%	0.0%	0.0%
Scooter	0.0%	0.0%	14.3%	42.9%	42.9%	0.0%	0.0%
Women riders	3.0%	3.0%	39.4%	42.4%	12.1%	0.0%	0.0%
Women passengers	0.0%	0.0%	20.0%	40.0%	40.0%	0.0%	0.0%
Customer/expert reviews							
Cruiser	3.7%	11.1%	18.5%	40.7%	18.5%	0.0%	7.4%
Sport	6.5%	3.2%	22.6%	41.9%	25.8%	6.5%	0.0%
Touring	12.1%	21.2%	6.1%	39.4%	21.2%	3.0%	0.0%
Scooter	0.0%	14.3%	0.0%	57.1%	28.6%	0.0%	0.0%
Women riders	6.1%	6.1%	42.4%	30.3%	15.2%	0.0%	0.0%
Women passengers	20.0%	20.0%	20.0%	40.0%	0.0%	0.0%	0.0%
Personal recommendations							
Cruiser	7.4%	3.7%	25.9%	40.7%	14.8%	3.7%	7.4%
Sport	3.2%	6.5%	32.3%	22.6%	32.3%	9.7%	3.2%
Touring	6.1%	15.2%	21.2%	39.4%	18.2%	0.0%	0.0%
Scooter	0.0%	14.3%	14.3%	57.1%	14.3%	0.0%	0.0%
Women riders	6.1%	3.0%	54.5%	27.3%	6.1%	3.0%	3.0%
Women passengers	20.0%	20.0%	0.0%	60.0%	0.0%	0.0%	0.0%

APPENDIX E: TYPICAL RIDING GEAR (FORM A)

For each item, indicate whether you: never, rarely, sometimes, usually or always wear it. The pictures are examples only.

Example	Item	Use Mark your response with an "X"	
Helmet		Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
If you wear a helmet, is it DOT certified? (circle your response)	YES NO DON'T KNOW		
If you wear a helmet, circle the type that best reflects the one you use.	   		
	Leather jacket	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Armored jacket	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Textile (no armor) jacket	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	

Example	Item	Use Mark your response with an "X"	
	Denim jacket	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Leather vest	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Armored vest	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Textile (no armor) vest	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Denim vest	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	

Example	Item	Use Mark your response with an "X"	
	High visibility gear	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Riding gloves	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Riding boots	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Eye protection	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	

OTHER (Specify) _____

Example	Item	Use Mark your response with an "X"	
	Leather pants	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Armored pants	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Textile (no armor) pants	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Denim pants	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Chaps	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	
	Rain gear	Never	
		Rarely	
		Sometimes	
		Usually	
		Always	

APPENDIX F: FACTORS IN CHOOSING GEAR (FORM B)

For each factor, circle "yes" or "no" as to whether it influences your decision to wear certain apparel on any given ride. After filling out the table please rank the **3 most important** factors that you marked "yes" from 1 (for the most important) to 3 (third most important).

Factors in choosing motorcycle gear			Rank the top three
Weather conditions (temperature, precipitation, etc.)	**Yes**	**No**	
Length of ride	**Yes**	**No**	
Whether riding alone or with others	**Yes**	**No**	
Time of day (day, evening or night)	**Yes**	**No**	
If it is an organized ride	**Yes**	**No**	
If you have been, or will be drinking	**Yes**	**No**	
Local laws	**Yes**	**No**	
The kinds of roads you'll be riding on (e.g., country roads, city roads, highway)	**Yes**	**No**	
The type of motorcycle you will be riding	**Yes**	**No**	
The type of traffic you expect (congested, high-speed)	**Yes**	**No**	
When riding as a passenger	**Yes**	**No**	
Add any other factors that may influence your choice of gear: _____ _____ _____			

APPENDIX G: FACTORS IN PURCHASING GEAR (FORM C)

For each factor: (1) Indicate whether it is not important, less important, neutral, important, or very important when purchasing motorcycle gear. (2) After indicating importance for each item, **rank** the **3 most important** factors from 1 (most important) to 3 (third most important).

Factors in purchasing motorcycle gear	Level of importance					Rank the top three
	Not Important	Less Important	Neutral	Important	Very Important	
Cost						
Sales, discounts or special deal						
Crash protection (for example, has tough/armored material)						
Crash avoidance						
Increased Visibility						
State Law Requires It						
It is DOT certified						
Other certifications (such as CE/European ratings)						
It matches the gear of another person/people in my riding group						
It matches the look of my motorcycle						
I like the way I look in it						
Someone else likes the way I look in it						
Comfort						
Weather Resistance						
Durability						
Machine Washable						
Brand/Logo						
Style						
Color						
Customer/Expert Reviews						
Personal Recommendations						
Other (please specify) _____						

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U.S. Department of Transportation
National Highway Traffic Safety Administration

GHSA
Governors Highway Safety Association
The States' Voice on Highway Safety

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