

VicRoads

Motorcycle Protective Clothing:
Market Testing of Two Safety 'Star
Rating' Models

Research Report

May 2007

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Executive summary

Aim and approach

- The aims of this research project were to:
 - > Determine motorcyclists' attitudes and behaviours in relation to wearing protective clothing and the factors involved in their choice of protective clothing
 - > Investigate whether motorcyclists would make use of a 'star rating' system for protective gear and if so, explore the potential features of such a system and how it should be designed for greatest effect
- The research included both qualitative and quantitative phases
- Four focus groups were held with the following groups of motorcyclists to get a broad understanding of attitudes and perceptions in relation to protective clothing:
 - > Riders of sports bikes
 - > Riders of touring bikes
 - > Riders of cruising bikes
 - > Riders of scooters
- An internet survey was conducted with 200 regular motorcycle riders (those who rode at least monthly) to quantify the behaviours and perceptions identified in the qualitative phase

Type of motorcycle ridden

- Of interest, a substantial proportion of respondents rode more than one type of motorcycle. Around one third of riders of most types of motorcycles also rode another type of motorcycle. However almost two thirds of scooter riders also rode another type of motorbike
- The above finding has implications when interpreting the results of the survey. Much of the information collected, such as the type of protective clothing worn, is presented according to the type of motorcycle ridden. However, it cannot be inferred that the type of protective clothing worn related only to when the rider was riding a particular type of motorcycle

Frequency of wearing protective clothing

- Almost all riders always wore a helmet, three quarters of riders always wore gloves, one third always wore a jacket and just over half always wore boots
- Motorcycle protective trousers, body armour or a protective suit were regularly worn by only a minority of riders
- An acceptable level of protective gear for riders of sports bikes, tourers and cruisers is generally considered to be a protective jacket, gloves and boots, although the boots are not necessarily specialist motorcycle boots
- Those riding scooters, on the other hand, are generally comfortable with a light jacket and covered shoes, while some wear no protective gear at all other than a helmet
- Exceptions to a general rule of wearing protective gear are often made for short trips or if the weather is hot

How protective gear is chosen

- Comfort and fit and injury protection are stated as the most important factors when riders are selecting protective gear, although decisions are made within the general parameters of 'what suits the type of bike' and the image to which the rider aspires
- Some groups of riders, including new riders, scooter riders, and some women riders are less integrated into the motorcycle community and have less access to 'word of mouth' and other knowledge about protective gear. A star rating system may be particularly useful for these riders
- Furthermore, a substantial proportion of riders, in particular women and scooter riders are concerned about the difficulty finding protective gear which fits, is attractive and can be worn in a 'normal' setting such as café, bar or office

Features of a star rating system

- The research findings indicated that there is substantial support for a star rating system to assist motorcycle riders in choosing protective gear and that a large proportion of riders would use such a system if it was designed to meet their needs
- While the preference was for an independent star rating system, rider's main concerns were that the system
 - > Is designed and implemented with input from credible motorcyclists
 - > Is managed by an independent organisation such as a government agency or university and uses independent testing facilities

- > Allows as much gear as possible to be tested and does not exclude smaller specialist manufacturers
- > Requires the display of the star rating on the item, either with a swing tag or discrete label, and provides information to indicate exactly what each number of stars means, at the point of sale
- > Is publicised broadly, particularly when the system commences

Construction of a star rating system

- While there was considerable support for a star rating system to address factors other than injury protection (such as water resistance and thermal protection), it was concluded that a multiple factor star rating system may become over complicated and difficult to achieve
- Further, the more complicated the system, the more difficult it would be to communicate to the consumer and hence the less likely it may be to be used
- It was therefore concluded that a star rating system should initially focus on injury protection, be very simple, be easy to communicate to consumers and be as resistant to fraud as possible
- It was recommended that:
 - > A star rating system be implemented which would commence with a simple overall star rating for injury protection, constructed by taking into account individual injury protection factors, and be presented according to the lowest rating achieved across all elements tested
 - > An expert committee including motorcyclists be formed to consider a star rating system for individual components of injury protection for specialist gear
- Further recommendations can be found on page 39 of this report

1 Introduction

The use of full motorcycle protective clothing (gloves, boots, jacket and pants, or suit) has been shown to protect the rider from many commonly occurring injuries such as lacerations, bruises, burns, infection from wound contamination, gravel rash and some fractures.

For those riders who choose to wear protective clothing, many different brands and styles exist. For the most part, there is no mechanism for determining the level of protection afforded by different pieces of protective clothing. Unlike Europe, where riders can be assured that the clothing they purchase has passed a series of tests and obtained a CE mark for Personal Protective Equipment, riders in Australia have no such guarantees.

This project investigated the feasibility and features of a system in Australia whereby consumers have access to information about some of the key safety characteristics of protective clothing, which they may then use in making purchasing decisions. Previous promotional campaigns have highlighted to riders the benefits of wearing full protective clothing. However, little has been done to investigate the attitudes of riders in their choice or non-choice of what protective clothing to purchase.

The reasons and purposes for riding can vary widely from a primary mode of transport to a recreational pursuit. Therefore motorcyclists should not be considered as a homogeneous group. Rather there is a diversity of subgroups that can be identified, for example, commuter, recreational, and off-road riders, all with a range of ages, experiences and types of

motorcycle ridden. Accordingly, attitudes towards protective clothing may vary for each group.

An earlier consultancy report for VicRoads considered the mechanisms of a safety rating system. Two models were proposed for the implementation of a star rating system – one being a voluntary scheme where the manufacturer or distributor can display the claimed star rating on a swing tag on the garment (random audits would promote compliance); the other is a system that involves an accrediting body which purchases and tests garments and publishes the safety ratings. Whichever model is selected, the criteria for determining the rating remains the same.

Aims and objectives

The aims of this research project were to:

- Determine motorcyclists' attitudes to protective clothing and beliefs about the benefits of wearing full protective clothing
- Explore motorcyclists' attitudes towards their choice of certain protective clothing over other types
- Investigate whether motorcyclists would make use of a safety 'star rating' system
- Examine how a star rating system should be presented for greatest effect, and
- Determine the likely acceptance and up-take of such a system amongst the motorcycling community

2 Methodology

The project included both qualitative and quantitative research phases.

Focus groups

The **qualitative** phase of the project involved conducting four focus groups with various sub-groups of motorcyclists to obtain rich, in-depth information about their attitudes towards protective clothing and their views about the potential star rating systems, to inform the quantitative research phase.

The four focus groups were conducted in Melbourne in February 2007 with the following groups of regular motorcyclists:

- Riders of sports bikes
- Riders of touring bikes
- Riders of cruising bikes
- Riders of scooters

All participants were recruited via professional recruiters and did not know each other.

Respondents in all groups except the scooter riders group were male, to avoid confounding of issues as male and female motorcyclists were expected to have different attitudes towards protective clothing. Male, rather than female riders were selected as the majority of motorcyclists are male (this decision was made following discussions with VicRoads).

Respondents were paid an incentive of \$70 to attend the group.

The focus groups were of one and a half hours in duration and seven to eight people attended each group.

Internet Survey

The **quantitative** research phase involved conducting an internet survey of 200 regular motorcycle riders (those who rode at least monthly) to quantify the behaviours and perceptions identified in the qualitative phase.

The internet survey had the following characteristics:

- The random survey was conducted by utilising Pure Profile's panel of people prepared to participate in research activities
- The panel provides a representative mix of the Australian population aged from 18-65 years (see www.pureprofile.com)
- A random sample of panel members who live in Victoria and regularly ride a motorcycle was invited to participate
- A small financial incentive was provided for each completed survey
- The survey took approximately 15-20 minutes to complete

Limitation

Internet survey respondents were asked to indicate the types of motorcycles they currently ride (including scooters). Much of the rest of the information collected, such as protective clothing worn, is presented according to the type of motorcycle ridden. Because quite a substantial proportion of respondents rode more than one type of motorcycle (see page 8 for more detail), it cannot be inferred that the type of protective clothing worn related only to when a particular type of motorcycle was being ridden.

Presentation of findings

The results are presented by issue.

For each issue, quantitative results are presented with qualitative commentary expanding on the issue and indicating any issues of particular relevance to certain motorcycle sub-groups.

For issues which were not addressed in the quantitative survey, qualitative commentary only is provided.

Data is generally only presented in charts where the sample size for most subgroups is greater than 30.

Differences between sub-groups of motorcyclists are reported where these are statistically significant. Hence whenever a difference is mentioned it can be assumed that this difference is statistically significant unless otherwise stated.

As a substantial proportion of respondents in the internet survey rode more than one type of motorcycle, differences on the basis of motorcycle type are minimised.

The test of significance conducted was a T test on proportions and means, where columns are tested against each other within the subgroups (eg male v female). Statistical significance is reported where the chance of a real difference being observed is at 95%.

3 Sample Description

3.1 Qualitative Research

Four focus groups were conducted with the following groups of regular motorcyclists (who rode at least monthly):

- Riders of sports bikes
- Riders of touring bikes
- Riders of cruising bikes
- Riders of scooters

This section describes key characteristics of the focus group participants.

Riders of sports bikes

- Seven men aged 23 to 37 years attended
- These riders had a wide variation in riding experience, from six months to 20 years
- Four had crashed while riding a motorcycle
- Most participants always or generally wore protective gloves (6 people) and a protective motorcycle jacket (5 people)
- Motorcycle boots were worn by four of the participants, with the others wearing hiking boots or trainers
- Three participants regularly wore protective trousers or suit or body armour

Riders of touring bikes

- Seven men aged 25 to 40 years attended
- These riders also had a wide variation in riding experience, from two to 18 years
- Two had crashed while riding a motorcycle
- All participants wore protective gloves, jacket and boots all the time or most of the time, although several occasionally wore Blundstones rather than motorcycle boots
- Five of the seven participants wore protective trousers all the time or most of the time

Riders of cruising bikes

- Seven men aged 35 to 53 years attended
- These riders had ridden for five to 25 years
- Four had crashed while riding a motorcycle
- The participants varied in their use of protective gear: four always or mostly wore full protective gear, while three long term riders only sometimes or never wore protective gear other than gloves (one only sometimes wore gloves)
- Open face helmets and sunglasses were worn by all but one participant
- This group was more likely than the sports bike riders and tourer riders to wear non-standard protective gear such as World War Two flying jackets or open leather jackets
- As with other groups, a variety of types of boots were worn, including cowboy boots, RM Williams boots and work boots
- No participants wore motorcycle suits or protective armour

Riders of scooters

- Five men and three women aged 23 to 48 years attended
- Again, these riders had a wide variation in riding experience, from eight months to 20 years
- Several participants had changed to scooter riding after riding other types of motorbikes when younger
- Three had crashed while riding any type of motorcycle
- These scooter riders were less likely than the other riders to regularly wear protective clothing
- A jacket was worn most of the time by half of the participants, although this was not always a protective motorcycle jacket
- Gloves and boots were worn by some riders, but again, these were not always standard motorcycle protective gear

3.2 Quantitative research

This section describes key characteristics of the focus group respondents.

Type of motorcycles ridden

The chart on the facing page shows the type of motorcycles ridden by respondents.

As shown in the chart:

- Half of all respondents rode a sports bike
- Around one third of respondents rode a cruiser
- Around one quarter of respondents rode a touring bike
- Just under one fifth of respondents rode a scooter
- 7% of respondents rode off-road bikes

As each respondent may have ridden more than one type of bike, the total is 129% (see page 8 for further explanation).

The following definitions were provided in the survey:

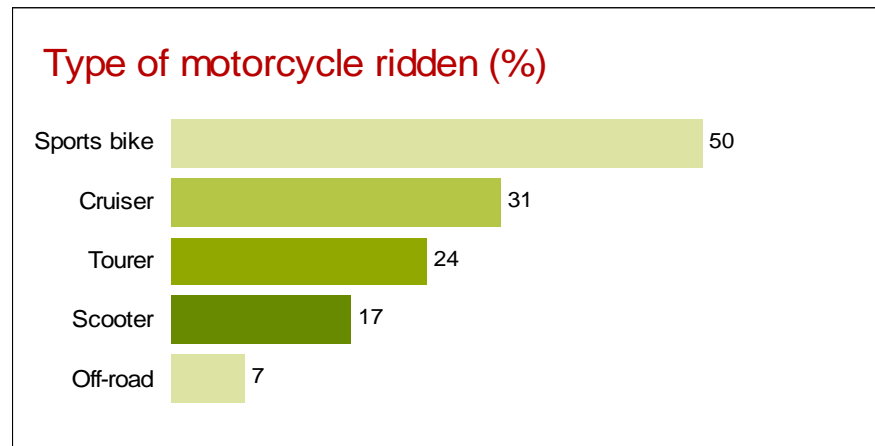
Sports bikes are characterised by having a more streamlined, aerodynamic design compared to other types of motorcycles. They have small 'clip-on' handlebars, and are essentially consumer versions of the motorcycles used in motorcycle sport. The riding position places the feet towards the back, the hands low and the spine inclined forward.

The cruiser is typical of the American-style machine circa 1930s-1960s. The riding position places the feet forward and the hands up, with the spine erect or leaning back slightly. Examples include Harley Davidson, Indian, Excelsior and Henderson. The "chopper" is a cruiser.

The tourer is more like a comfortable sports bike, however it involves a reasonably upright riding position. It has larger displacement fairings and a windshield to protect from the wind and weather.

Scooters are small two wheelers with a 'step-through' configuration, usually with a lot of bodywork and the engine mounted at the back on the swingarm. They often have smaller wheels, automatic transmission and generally smaller engines. A popular example is the Vespa.

A definition of **off-road bikes** was not provided. This category was created after a number of respondents indicated that they rode off-road bikes.



Type of motorcycles ridden, cont

It is important to note that a substantial proportion of respondents rode more than one type of motorcycle.

This means that differences on the basis of motorcycle type are minimised in the results.

The facing table shows the number of respondents who rode each type of motorcycle.

Of particular note, 61% of scooter riders also rode other types of bikes: 36% also rode a cruiser, 36% also rode a sports bike and 27% also rode a touring bike. This means that data relating to scooter riders, such as protective clothing worn, does not only refer to when these riders were riding a scooter.

Appendix 4 provides an overview of the types of bikes ridden by survey respondents.

Table 1: Type of motorcycles ridden (number and %)

	Total	Only rode this type of motorcycle	Also rode other types of motorcycles
Type of motorcycle			
Cruiser	62	38 (61%)	24 (39%)
Tourer	47	29 (61%)	18 (39%)
Sports bike	99	71 (72%)	28 (28%)
Scooter	33	13 (39%)	20 (61%)
Off road bike	14	7 (50%)	7 (50%)
Other	2	1 (50%)	1 (50%)
TOTAL	257	159	98

Type of motorcycles ridden by age, sex and location

Table 1 shows the sample by age, sex and location and by the type of motorcycle ridden.

Age

Just over three quarters of respondents were aged between 25 and 60 years, one fifth were aged under 25 years, and a small proportion were aged 60 years or over.

Cruiser and tourer riders tended to be older (40+ years), while sports bike and scooter riders tended to be younger (under 40 years).

Sex

Overall, 71% of respondents were male and 29% were female.

While more men than women rode all types of motorcycles, a higher proportion of women rode off-road bikes and scooters.

Location

Overall, 81% of respondents were from Melbourne, 9% were from provincial cities such as Geelong, Ballarat or Bendigo and 11% were from smaller towns or rural areas.

Scooter riders were more likely to reside in Melbourne, while off-road bike riders were more likely to reside in rural areas.

Table 2: Type of motorcycles ridden by age, sex and location (%)

	Total	Cruiser	Tourer	Sports	Scooter	Off road
BASE (n=...)	200	62	47	99	33	14
Age						
18-19 years	2	3	4	3	3	7
20-24 years	17	13	13	22	27	7
25-39 years	38	29	28	51	42	21
40-59 years	40	45	53	24	21	64
60+ years	4	10	2	0	6	0
Sex						
Male	71	71	85	71	67	64
Female	29	29	15	29	33	36
Location						
Melbourne	81	85	83	85	91	43
Provincial city	9	6	9	9	0	14
Rural Victoria	11	8	9	6	9	43

Note: Some riders rode more than one motorcycle type (see p 8)

Type of motorcycles ridden by purpose and frequency

Table 2 shows the sample by the purpose and frequency of riding and by the type of motorcycle ridden.

Purpose

Respondents could indicate multiple reasons for riding:

Overall:

- More than three quarters of respondents rode for recreation (on-road)
- Just over half commuted to work and/or travelled to social outings
- One fifth rode for recreation (off-road)
- 8% rode during their work (eg as a courier, training instructor, postie)
- 5% participated in motorcycle racing

Frequency

Overall:

- One third of respondents rode daily
- Almost half rode weekly
- Almost one fifth rode every month

Table 3: Type of motorcycles ridden by purpose and frequency of riding (%)

	Total	Cruiser	Tourer	Sports	Scooter	Off road
BASE (n=...)	200	62	47	99	33	14
Purpose						
Commuting	54	50	66	58	70	21
Social outings	52	63	51	55	76	7
Working	8	11	13	9	12	14
Rec on-road	78	84	81	76	76	64
Rec off-road	20	13	17	26	21	79
Racing	5	10	13	7	18	0
Frequency						
Every day	37	37	43	38	52	14
Every week	46	48	40	47	39	43
Every month	18	15	17	14	9	43

Note: Some riders rode more than one motorcycle type (see p 8)

Cruiser riders generally rode every week or daily for recreation on-road, social outings and commuting.

Tourer riders were most likely to ride daily or weekly for recreation on-road and commuting.

Sports bike riders generally rode weekly or daily for recreation on-road, social outings and commuting.

Scooter riders were the most likely to ride daily and had the highest frequency of commuting and travelling to social outings as well as riding for recreation on-road.

Off-road bike riders tended to ride weekly or monthly for recreation off-road or on-road.

Type of motorcycles ridden by experience, licence type and crash

Table 3 shows the sample by the number of years of riding experience, licence type, involvement in a crash and whether medical treatment was required as a result of the crash and by the type of motorcycle ridden.

Licence type and years riding

Just over 80% of the sample had a full motorcycle licence, 9% had a probationary licence, 7% had a learner's permit and 3% (5 people) indicated that they did not have a motorcycle licence or had another type of drivers licence.

While two fifths of respondents had ridden for more than 10 years, around one fifth each had ridden for less than two years, 2-5 years and 6-10 years.

Scooter riders were more likely to have a probationary licence and fewer years of riding experience.

Cruiser and tourer riders were more likely to have a full motorcycle licence and have ridden for more than 10 years.

Crash and medical treatment

Almost half of the sample had crashed while riding:

- 31% had crashed once or twice
- 14% had crashed 3-5 times
- 3% (6 people) had crashed more than five times

Of those who had crashed while riding, half required medical treatment as a result of a crash.

Table 4: Type of motorcycles ridden by experience, licence type and crash (%)

	Total	Cruiser	Tourer	Sports	Scooter	Off road
BASE (n=...)	200	62	47	99	33	14
Years riding						
<2 yrs	17	18	19	19	33	0
2-5 yrs	23	21	17	27	33	7
6-10 years	18	11	13	23	9	14
>10 yrs	43	50	51	30	24	79
Licence type						
Full licence	82	87	89	75	70	79
Probationary	9	6	9	12	21	14
Learners permit	7	6	2	9	9	0
None/other	3	0	0	4	0	7
Ever had crash?						
No	53	52	47	53	64	29
Total Yes	48	48	53	47	36	71
1 or 2 times	31	31	32	29	24	57
3 to 5 times	14	15	17	13	9	7
> 5 times	3	3	4	5	3	7
Required medical treatment?						
Yes	51	57	64	49	58	60
No	49	43	36	51	42	40

Note: Some riders rode more than one motorcycle type (see p 8)

4 Research Findings

4.1 Frequency of wearing protective clothing

The facing chart shows the percentage of survey respondents who stated that they always wore various items of protective clothing. The findings were similar in the focus groups.

Almost all riders always wore a helmet, three quarters of riders always wore gloves, one third always wore a jacket and just over half always wore motorcycle boots.

Motorcycle protective trousers, body armour or a protective suit were regularly worn by a minority of riders.

In the focus group discussions, riders indicated that full protective gear (at least jacket, gloves and boots) was more likely to be worn on long trips, when the weather was cold or rainy and while racing.

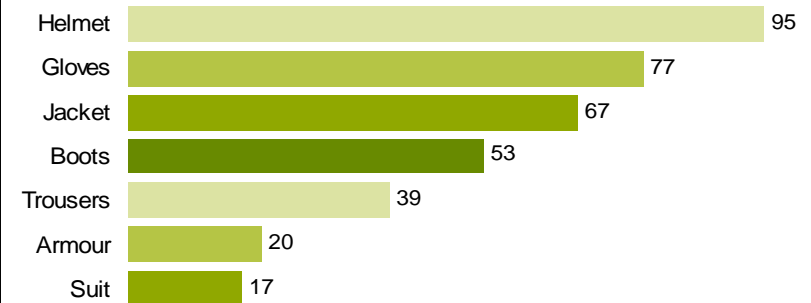
Serious riders (who had ridden for a long time, rode frequently and often used a motorcycle as their main form of transport) often had more than one type of protective gear depending on the weather and the type of bike they were riding (ie a lighter jacket for summer and a thicker heavier jacket for winter).

Riders who rode more than one type of motorcycle indicated that they wore different levels of protective clothing depending on the type of motorcycle they were riding. For example, riders were far more likely to wear their protective jacket, gloves and boots and full face helmet when riding a tourer or sports bike than when riding a scooter.

I've just swapped to riding scooters...I would always wear jeans, high boots and jacket on motorbike.

I use open face helmet on the Vespa...if I have to put all the gear on, I may as well take the car!

Always wear protective clothing (%)



The following definitions together with descriptive photographs were provided:

- Motorcycle gloves
- Motorcycle boots - with ankle protection
- Motorcycle protective jacket – leather or abrasion resistant synthetic material
- Motorcycle protective trousers – leather Draggin jeans or abrasion resistant synthetic material
- Motorcycle protective suit – leather or abrasion resistant synthetic material
- Motorcycle body armour

Frequency of wearing: helmet and eye protection

The facing chart shows the proportion of riders who always wore a helmet by the purposes for which they rode. Riders may have ridden for more than one purpose. The lower proportion for riders who rode for work or racing related to two and one respondent respectively, due to small sample sizes in these categories (see Appendix 5).

Women (90%) were less likely than men (97%) to always wear a helmet.

Type of helmet

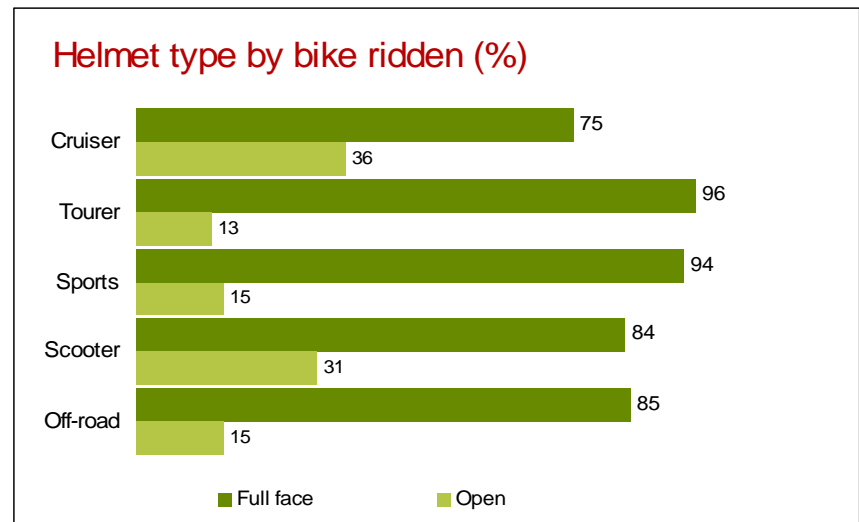
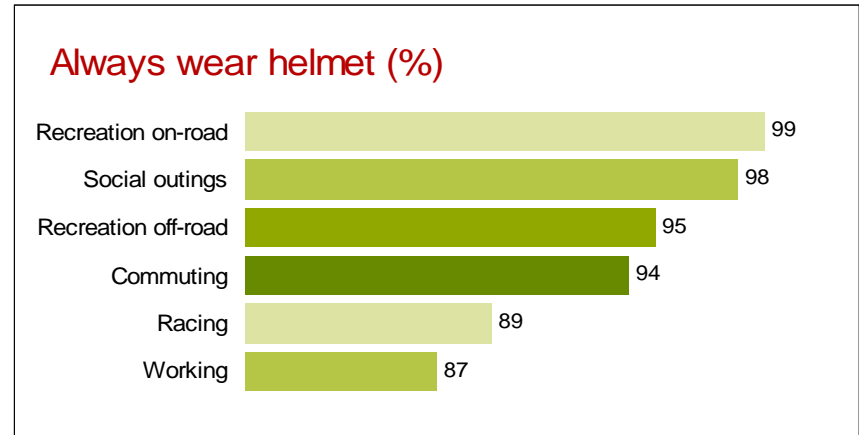
Of those respondents who wore a helmet, overall 86% wore a full face helmet and 20% wore an open helmet (there was overlap in the responses as some respondents wore more than one type of helmet, depending on the weather conditions and type of bike they were riding).

Full face helmets were more likely to be worn when riding touring bikes and sports bikes, while open helmets and were worn more often when riding cruisers and scooters.

Type of eye protection

Those who wore open helmets were asked what type of eye protection they wore (multiple responses were possible):

- 64% wore standard sunglasses
- 56% wore a visor
- 46% wore motorcycle goggles (all but one of the off-road and racing riders wore goggles)

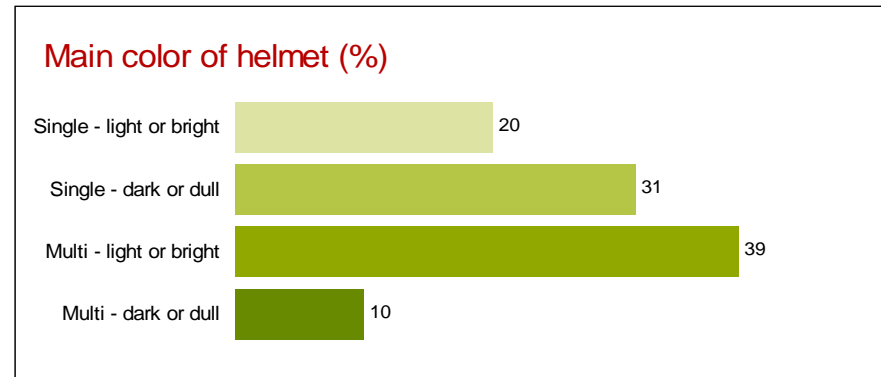


Color of helmet

Survey respondents wore a variety of helmet colors, although multi-coloured light or bright helmets were the most popular.

The following differences were observed in helmet color, on the basis of type of bike ridden:

- Touring bike riders (39%) and scooter riders (31%) were more likely than the average to wear a helmet of single color – light or bright
- Cruiser riders (51%) were more likely than average to wear a helmet of single color – dark or dull
- Sports bike riders (55%) and off-road bike riders (54%) were more likely than average to wear a multi-coloured light or bright helmet, generally chosen to match their bike



Frequency of wearing: motorcycle gloves

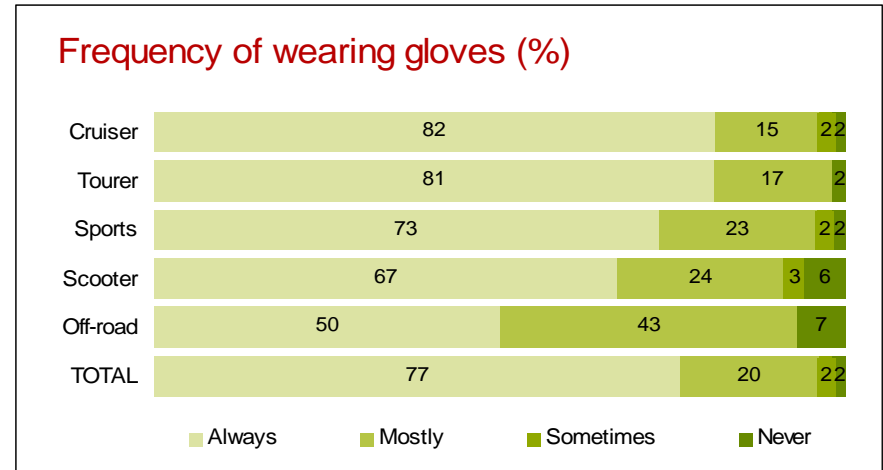
Overall, three quarters of survey respondents always wore gloves, one fifth wore gloves most of the time and a small proportion only sometimes or never wore gloves.

While those who rode off-road were the least likely to wear gloves, this finding should be interpreted with care as only 14 off-road riders were included in the sample.

The differences observed among riders of the other motorcycle types were not statistically significant.

Those aged under 25 years (62%) were less likely to always wear gloves than those aged 25 years and over (80%).

The reason for this may be due to the cost of purchasing protective gear, which was prohibitive to some younger riders, particularly if they only rode a scooter and believed gloves were not essential.



Frequency of wearing: motorcycle boots

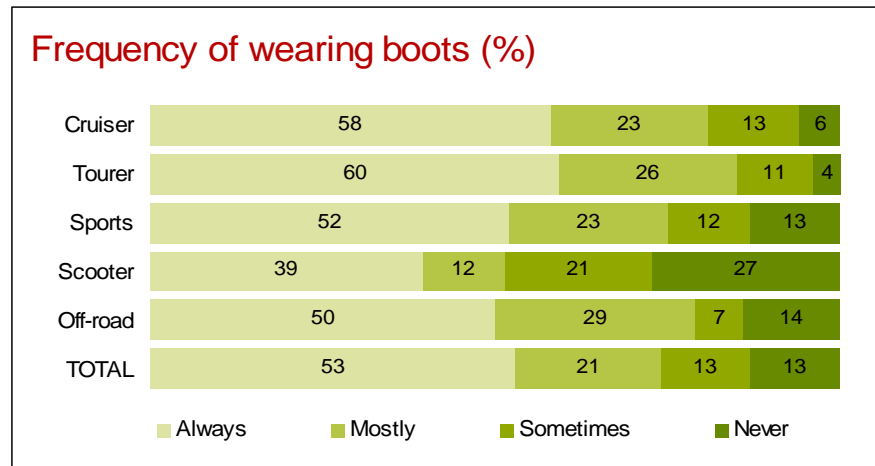
Overall, half of survey respondents always wore motorcycle boots with ankle protection, one fifth wore boots most of the time and one quarter only sometimes or never wore boots.

While scooter riders were the least likely to wear motorcycle boots, this finding was not statistically significant.

While there was a trend for riders aged 40 years and over (60%) to be more likely to wear motorcycle boots, this was not significant.

No other demographic differences were observed in relation to wearing of motorcycle boots.

From the focus group discussions, it appears that most riders understand the need to wear covered footwear, however views about the level of protection necessary vary. Many respondents considered that Blundstones, RM Williams boots, work boots or cowboy boots were acceptable. Younger riders and scooter riders often wore work shoes, trainers or hiking boots.



Frequency of wearing: protective jacket

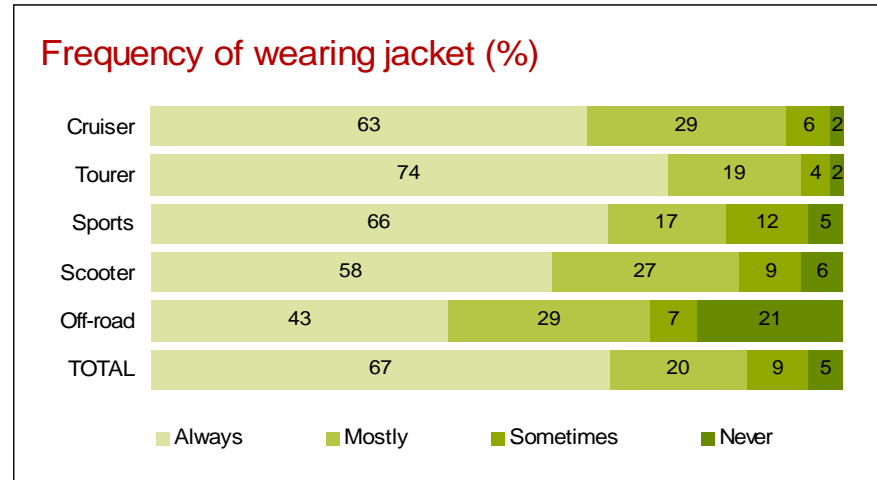
Overall, two thirds of survey respondents always wore a protective motorcycle jacket, one fifth wore a jacket most of the time and a small proportion only sometimes or never wore a protective motorcycle jacket.

While those who rode off-road were the least likely to wear a jacket, this finding should be interpreted with care as only 14 off-road riders were included in the sample.

While 58% of scooter riders in the survey stated that they always wore a protective jacket, the focus group discussions suggested that the jacket was likely to have been regular street wear or sports wear rather than specifically made for protection while riding.

It is also worth noting that 61% of the survey respondents who rode a scooter also rode another type of bike, which is likely to explain their wearing of protective gear such as a motorcycle jacket.

No demographic differences were observed in relation to wearing of a protective motorcycle jacket.



Frequency of wearing: protective trousers

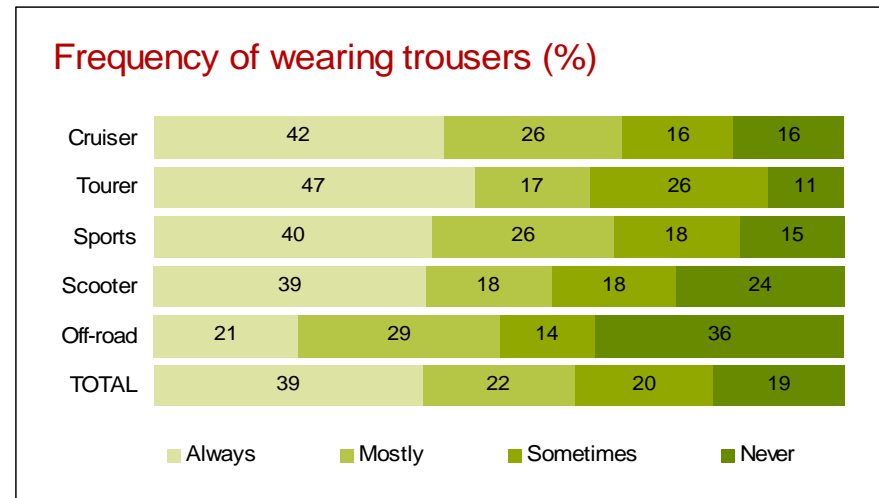
Overall, just over one third of survey respondents always wore protective motorcycle trousers, one fifth wore protective trousers most of the time, one fifth wore protective trousers sometimes and one fifth never wore protective trousers.

Again, while those who rode off-road were the least likely to wear protective trousers, this finding should be interpreted with care as only 14 off-road riders were included in the sample.

While 39% of scooter riders in the survey stated that they always wore protective trousers, the focus group discussions suggested that these trousers were likely to have been jeans rather than specifically made for protection while riding.

Again it should be noted that 61% of the survey respondents who rode a scooter also rode another type of bike, which is likely to explain their wearing of protective trousers.

No demographic differences were observed in relation to wearing of protective trousers.



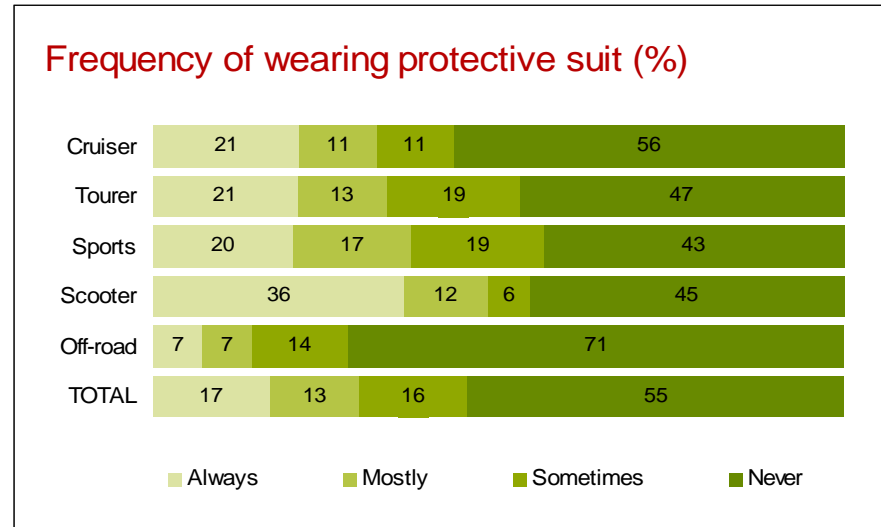
Frequency of wearing: protective suit

Overall, just over half of survey respondents never wore a protective motorcycle suit, while a small proportion indicated that they sometimes, mostly or always wore such a suit.

Again, while who rode riding off-road were the least likely to wear a protective motorcycle suit, this finding should be interpreted with care as only 14 off-road riders were included in the sample.

Since 61% of the survey respondents who rode a scooter also rode another type of bike, this is likely to explain the large proportion of scooter riders who wore a protective suit.

No demographic differences were observed in relation to wearing of a protective motorcycle suit.



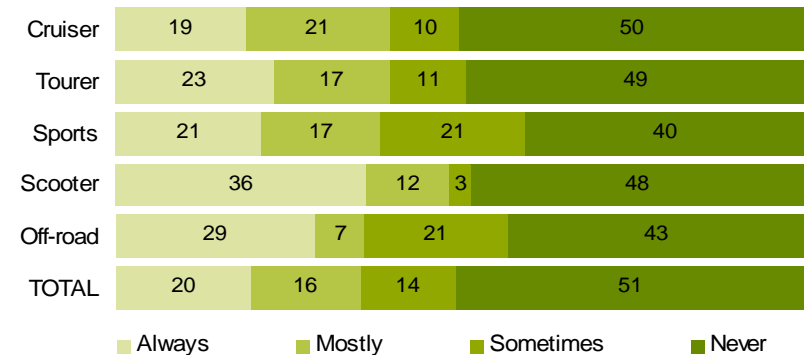
Frequency of wearing: body armour

Overall, half of survey respondents never wore protective body armour, while a small proportion indicated that they sometimes, mostly or always wore this level of protection.

Since 61% of the survey respondents who rode a scooter also rode another type of bike, this is likely to explain the large proportion of scooter riders who wore body armour.

No demographic differences were observed in relation to wearing of body armour.

Frequency of wearing body armour (%)



4.2 Reasons for not wearing protective clothing

Survey respondents and focus group participants who indicated that they did not always wear full protective clothing (boots gloves, motorcycle protective jacket and trousers) were asked to explain the reasons for not always wearing full protective gear.

The full responses, together with the frequency of wearing protective gloves, boots, jacket and trousers are shown in Attachment 1.

The main reasons given for not always wearing full protective gear were:

- Too hot
On a very hot day, wearing full protective gear would be too hot!
- Not comfortable/restrictive
It can be uncomfortable, especially on long rides and/or hot days.
- Do not have full range of gear (mainly trousers, suit or armour)
Don't own all the gear, just bought what I thought was essential.
- Too expensive (mainly in reference to protective trousers, suit and armour)
Wear jeans instead of Draggin jeans or pants as the protective pants are too expensive.
Can't afford the Draggin' jeans, so wear normal thick jeans. I wear leather boots mostly on the bike, but again - it's a cost issue.
- Jeans/other boots considered to offer adequate protection

I do not own protective pants or special boots however I ensure that I am wearing a solid pair of jeans and solid leather boots when riding. As the bike that I own has a top speed of about 80Km/h, and I only ride short distances on quiet country roads.

- Going to work/out and protective clothing not suitable or attractive
Riding to work it is difficult to wear full protective gear with my work clothes (suit).
I commute to work about 2kms each day. Protective clothing looks crap! Need to store it somewhere if I'm going out... inconvenient. And finally, it may save my skin, but unless it has armour it will not save my life... instead... I watch the road.
If you go to a pub with boots and all of that, they don't let you in!
- Not enough time/inconvenient to change into/out of protective gear
Pants in particular take too long to put on and off and get very smelly if used regularly. They are also extremely hard to get on and off... and add to the bulk of stuff that you end up carrying around. I usually use a set of heavy duty jeans instead.
- Only going for a short trip/only riding slowly
Sometimes only travel a very short distance. This is ignorance but it does happen sometimes.
- Can't get gear to fit
I am of a large size and it is not possible to get all the gear in my size and some days it is such a nice day that it is lovely to ride and enjoy it!
I am a large lady and nothing is made for my size unless I buy something that is made for a 6ft male and the arms hang down to the ground. I have large muscles in my lower leg and if a boot fits the leg it is 10 sizes too big in the foot!

4.3 Current knowledge of protective gear and how protective gear is chosen

The issues surrounding knowledge of protective gear and how protective gear is chosen were discussed in the focus groups, but were not addressed in the internet survey due to the complexity and of the attitudinal factors involved.

Sports bike riders

Color and 'fashion' was the key consideration when selecting protective gear. Sports bike riders generally like to match their protective gear and helmet to their motorbike.

People like to match it to their bike. I bought mine because it was black and yellow.

Color. Had to buy a bike that matched my gear. Blue.

You have to match your bike. Wouldn't have a yellow suit on a blue bike!

Most participants were well integrated into the motorcycling community, had good knowledge of the features of protective gear and generally bought their gear from motorcycle shops, although one person bought his gear from the United States via the internet.

Gear was selected on the basis of recommendations from friends and 'general knowledge' in the motorcycling community.

While toughness and protection from injury and weather were important, these factors were generally assumed as a given with well known and respected brands such as Alpine Star, Dry Rider and Draggin Jeans.

While the group stated that value for money was important, in practice, they tended to purchase brands which specialised in gear for sports bike riders and which enabled them to portray the 'correct' image.

Touring bike riders

Quality and 'protection' appeared to be more important than fashion or style to this group. A certain 'look' was still important, although this look was less clearly defined than for the sports bike or cruiser riders.

In relation to style, when I get off I don't want to look like a frump...when I'm sitting having coffee.

Most people match their outfits with their bikes.

The participants in this group were less likely to be part of a motorcycling 'scene' and there was more variation in their knowledge of bikes and gear.

Overall there was good awareness of the protective characteristics of gear such as visibility, the need for elbow and shoulder pads and protective fabrics such as Kevlar.

Most of the participants in this group bought their gear from specialist motorcycle shops, often when buying their motorbike. The gear was often all bought at the same time from the same store.

Choices were made on the basis of recommendations from sales staff, personal research (labels, any articles/reviews in motorcycle magazines) and the perception of the brand.

Stick to well-known brands.

Cruiser riders

Cruiser riders like to maintain a certain image which clearly drives their selection of motorcycle gear:

Open face helmet. Sunnies at most. More of a bygone era where movies projected images of Harley riders.

An image where you don't care what others think!

While protection is stated to be important, image is the overriding consideration, and the protection needs to be provided within the image of a cruiser rider.

Open face helmets, sunglasses and black leather clothing (not standard motorcycle protective gear) is usually worn.

No!! I always wear black.

The jacket was the main thing. The quality of the leather. I wanted thick leather, so I had Mars leather make the jacket custom fit. Totally for protection.

My jacket, I only wear in cool weather, had to be leather, I had it made in Asia. I actually wanted it in orange, black and white, Harley colours. Orange stitching. Little bit of a fashion thing too. Double stitched on elbows, heavy leather. Went in and specified what I want.

Scooter riders

The scooter riders who attended the focus group paid very little attention to and had very little knowledge of protective gear.

There was a general view that a scooter was not really considered to be a motorbike and hence was not considered to require full protective clothing. In addition, the image of a

scooter rider was considered to counter the wearing of full protective gear.

Vespa. There is a certain image that goes along with that. Cool, hip, funky thing to do. You don't want to look like a dog on it!

I used to ride a motorbike and always wore (protective clothing), now I don't need it so much.

Most participants regularly wore light clothing while riding, including shorts or three quarter pants (women) and no jacket or gloves. Those participants who did wear a jacket usually wore light street or sports styles.

I don't wear a jacket unless it's cold.

People mock you if you wear protective gear because you are on a small scooter.

Mine are ski gloves!

Further, the protective clothing available was not considered to suit scooter riders or to be adequately fashionable, particularly for women.

I feel like a bit of a bogan wearing a leather jacket when people are in suits...The range of stuff is really, really crappy.

Once again...the range of boots, I don't know what people are thinking. If something didn't make you look like you were going to Iraq!...there is a great market (for more suitable clothing).

If you wear all that and walk into an office...all the boots look different to normal work wear...Look like a policeman!

If there was a better range, would make the decision to wear it easier.

4.4 Importance of factors when selecting protective gear

Survey respondents were asked to rate the importance of various factors when buying protective gear other than a helmet, from a list provided which was generated during the focus groups.

The facing chart displays the mean rating (out of 10) for each factor where 0 is not at all important and 10 is extremely important.

The most important factors were comfort, good fit and injury protection, each receiving mean ratings greater than 8/10.

Cold, rain and heat protection and price were considered to be moderately important with mean ratings between 7 and 8/10.

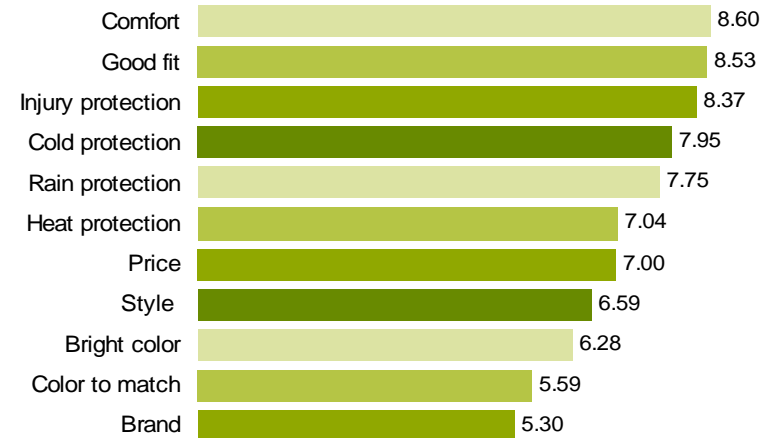
Style, color and brand were least important with mean ratings of 5 to 7/10.

Bright color to be seen by other users rated just over 6/10 in importance.

Some differences were observed on the basis of age:

- As riders age, they place higher importance on comfort, good fit and protection from cold
- Younger riders are more concerned with the color of clothing, to match motorcycle, helmet or other accessories, rather than for reasons of conspicuity

Importance of factors when buying gear (mean rating)



Importance of factors when selecting protective gear cont

After rating the importance of items presented in the list, the survey asked respondents to indicate exactly what they were looking for in protective gear.

The full list of responses is provided in Attachment 2.

The responses generally reflected the data presented in the previous chart, with safety, protection and comfort prominent.

Other factors raised in the comments as well as during the focus groups were:

- Gear needs to be easy to put on and take off

It must be effective!!! Comfortable to wear for long periods, looks good, affordable, easy to put on/take off.

I want stuff that is easy to be seen by other road users both day and night, it must offer a good level of protection and be comfortable to wear for extended periods. It also needs to be easy to put on and take off, and must last well and be good value for money.

- There is a desire for protective gear that can be worn as street wear, for example stylish jeans

Needs to look good, comfort, reasonably priced (without saying how much is your skin worth) all this when I'm on and off the bike... Draggin is trying to do it, but they ain't no diesel jeans...

It has to be functional as street clothing as well.

Comfortable clothing that doesn't necessarily look like motorcycle gear.

Normal looking clothes that are in your size and don't make you look like you are going to Phillip Island!

- Gear that can be adapted for summer and winter (eg removable inner shells)

Firstly comfort and good fit, then body armour, rain proof, warmth, movement, ventilation, versatility (eg. zip out liners, etc), style, ability to mix and match (ability to zip jacket to pants), design, colour. Ideally one outfit that could be worn in all seasons all year. Currently I have a winter outfit and a summer outfit, with other items that come in between. The winter outfit is great in winter but too hot in summer.

Good protection in case of accident, that is able to be worn during either summer or winter. A reasonable price is very important.

- Women want more variation in sizes, including smaller sizes, women's fittings in larger sizes (women with a large chest size find it difficult to fit into men's gear as well as women wanting a more feminine fit)

Something that fits because I have a large bust and calves so I can't get protective footwear or clothing that fits unless custom made and I am restricted by the price, so far.

Something that fits! Women's gear tends to be limited size range and as a plus-size woman, I always end up with men's range only to choose from; even boots!

- The importance of price varies by individual, with younger riders tending to be more price conscious

Affordable gear that works!

4.5 Views about star rating systems

Overview

Focus group participants and survey respondents were asked whether they would find a star rating system useful when next deciding what motorcycle protective gear to buy.

The star rating system was described as a rating of how well the item would protect the rider in the event of a crash (similar to safety ratings for cars or energy efficiency ratings for white goods).

Overall, 96% of respondents indicated that they would find a star rating system useful:

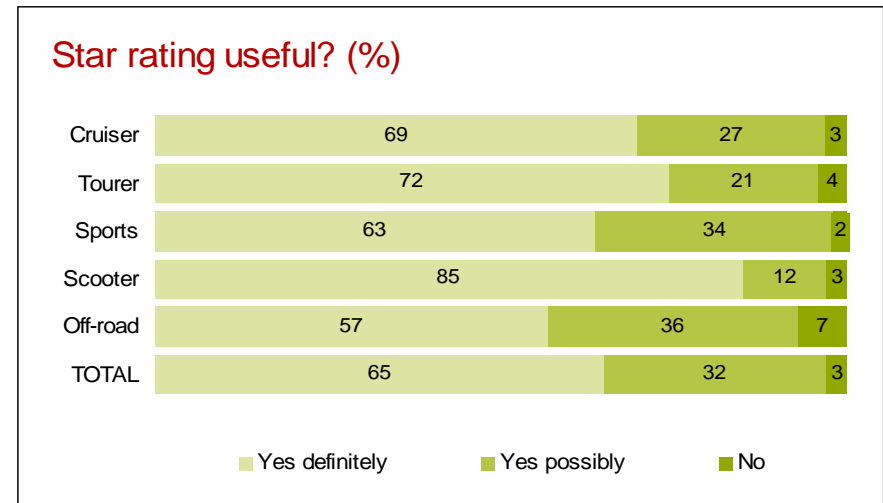
- 65% would definitely find a star rating system useful
- 32% would possibly find a star rating system useful

Only 3% indicated that they would not find a star rating system useful and 1% was not sure.

Scooter riders (85%) were more likely than other groups to indicate that they would definitely find a star rating system useful when choosing protective gear, perhaps because they were generally less experienced with motorcycling and had fewer connections to the motorcycling community, hence had fewer ways of understanding the need for and quality of protective clothing.

In addition, the focus group participants were asked if they were aware of the CE mark on some imported European clothing which is an indicator that the item meets the European standard for protection.

Only several 'serious' riders were aware of the CE mark.



Preference for voluntary or independent system

Respondents were then asked whether they would prefer a voluntary star rating system or an independent star rating system, as developed in a previous research project.

The two systems were described as follows:

Voluntary industry star rating system:

- The manufacturers and distributors of protective clothing would choose whether to participate
- The star rating could be displayed on a swing tag on the garment
- Items would be tested at local or international accredited testing facilities and required to pass certain specified criteria
- A system of random audits would be conducted to ensure compliance of items with the test procedures
- Assessed items would be listed (eg on a website, brochures or magazines)

Independent star rating system:

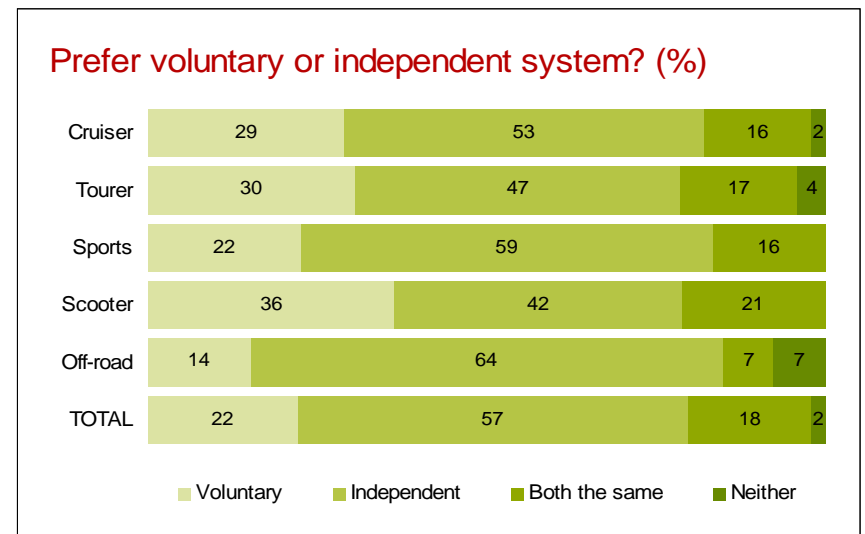
- An independent accrediting organisation would purchase and test garments/protective items (similar to what is done by Choice magazine)
- Garments would be tested against national guidelines for manufacturers of protective clothing
- Due to the number of products on the market, It would not be possible to test all items
- The star rating may be displayed on the article
- Results would be published (eg in magazines, website, brochures)

As shown in the chart below, there was a preference for an independent star rating system, which was also reflected in the focus groups:

- 57% of respondents preferred an independent system
- 22% preferred a voluntary system
- 18% thought both would be the same
- 2% preferred neither

Scooter riders were more likely than other groups to prefer a voluntary star rating system.

No age or gender differences were observed.



Reasons for preference for voluntary or independent system

The reasons for preference of a voluntary or independent system were discussed in the focus groups.

Participants generally preferred an independent system for the following reasons:

- A voluntary system may exclude smaller, specialist manufacturers if cost of participation is an issue
- A voluntary system may not include enough manufacturers or items to assist the consumer to make a decision (ie not enough items may be rated)
- A truly independent system would be preferable to ensure consistency of testing and reporting and to avoid fraud
- A strong preference was expressed for the system to be managed by an independent (eg university) or government agency
- A strong preference was also expressed that motorcyclists should be included in the management of the system to ensure credibility

The following additional points were made:

- Irrespective of the system employed, the rating should be displayed on the item (eg swing tag or subtle label), with information available at the point of sale
- The system should be publicised broadly, particularly at commencement
- A rating system may reduce the cost of buying protective gear for the consumer because they would be able to select the cheapest item with the best protection rather than just going for top brands as is presently the case

Features of a star rating system

Survey respondents were asked to rate the importance of various features of a star rating system, from a list provided which had been generated during the focus groups.

The facing chart displays the mean rating (out of 10) for each factor where 0 is not at all important and 10 is extremely important.

As shown in the chart, most factors were considered to be very important, with the top four receiving ratings in excess of 8/10.

A number of demographic differences emerged:

- Women were more likely to want as much gear as possible to be tested and included and to have information indicating exactly when the rating means – this is probably because women are concerned about the lack of suitable protective gear
- Riders aged 40+ years were more likely to believe that the management organisation should include motorcycle riders and that as much gear as possible should be tested and included
- Riders aged 25+ years were more likely to want to see the star rating shown on the item and to have information indicating exactly what the rating means

Importance of features (mean rating)



A full outline of the factors is shown below:

- As much gear as possible to be tested and included
- Management organisation to include motorcycle riders
- The star rating shown on the item (eg with a swing tag or on an inside label)
- Information to indicate exactly what each number of stars means
- Independent testing facilities
- Managed by an independent organisation
- Participation in the rating system NOT voluntary

Elements to be addressed

Respondents were asked whether a star rating system should only address injury protection or whether it should address other factors such as weather protection (eg ventilation, water resistance, wind protection).

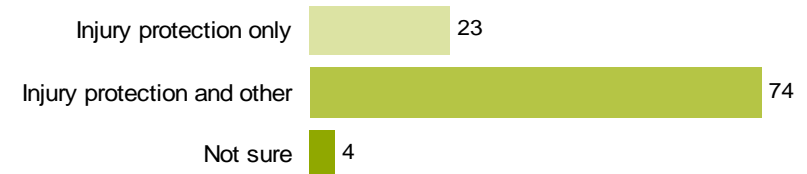
Those who thought a star rating system should include other factors, were asked which should be included, from a list provided.

The survey findings are shown in the facing charts:

- Three quarters of riders would like a star rating system to include other factors in addition to injury protection
- Water resistance and thermal protection were considered to be the most important factors to include
- A comfort rating was also considered to be important by just over half of respondents. However, in the focus groups it was concluded that comfort was a very personal and subjective element which would be difficult to measure in an objective way and therefore would not really be suitable for a star rating system
- Other factors mentioned which could be included in a star rating system included: durability, visibility, value for money and versatility (eg to adjust for heat and cold)

No demographic differences were observed.

Elements to be included (%)



Elements to be included (%)



Potential problems with star rating system

Just over one quarter of survey respondents (27%) indicated that they could envisage problems with a star rating system. The full list of responses is provided in Attachment 3.

The following key issues were raised in both the survey and the focus groups:

- The system may result in increases in the costs of protective gear, either through the cost to manufacturers of being involved in the system being passed on to consumers or because manufacturers who achieved a high star rating may try to benefit financially from this
- If manufacturers had to pay to participate it may discriminate against smaller boutique manufacturers
- A simple system could only take account of some factors, it would be difficult to take too many factors (eg water resistance, thermal protection, comfort) into account without making the system too complicated
- It would be important that the system was well monitored and enforced to avoid fraud/misleading information
- The definition of what the stars mean would need to be very clear and objective and not open to abuse
- It would not be clear how items would stand up to their rating over time
- It would work best if all gear was included, otherwise cheap imports may bypass the system
- It may stifle innovation if manufacturers only focus on the factors that are measured by the system
- Old stock may not be rated

The construction of the star rating system

Injury protection

The focus groups discussed the relative merits of an overall star rating for injury protection compared with individual star ratings for various elements. As described in a previous consultancy report, the individual elements might include:

- Abrasion resistance
- Burst strength of seams and fastenings
- Maximum 'knife' penetration

The various groups of riders had differing views about the construction of the star rating system:

- Sports bike riders generally wanted as much detail as possible about the level of injury protection and hence preferred individual star ratings for individual elements
- Touring bike riders and scooter riders generally preferred a single star rating for injury protection which took into account each of the elements outlined above as this was considered to simplify the process of selecting protective gear
- Cruiser riders had mixed views

The groups also discussed the way an overall rating would best be determined, ie an average of the ratings for each element or the lowest rating achieved across all elements.

Again, the views were mixed, with slightly more riders preferring a system where the lowest rating determined the overall rating.

Injury protection and other factors

Where time allowed, the groups also discussed the formulation of a rating that included factors other than injury protection, eg water resistance and thermal protection.

Overall, more riders preferred to separate ratings for injury protection from other factors.

Summary

These discussions highlighted the difficulty of constructing aggregate star ratings and the need to be able to communicate the meaning of the rating to the consumer.

While a star rating system which addresses a number of elements is 'nice to have' as shown by the views presented in the quantitative research, the operation and meaning of the system becomes more complex when it is thought about in detail.

Any star rating system should therefore focus primarily on the best way to assist the consumer to make an informed decision when selecting protective gear.

In summary riders indicated their primary concerns are for:

- Simplicity
- A clear understanding of what the star rating means
- A system which is not easily 'fudged'
- A focus on safety and injury protection because other factors are too difficult to define or result in confusion when constructing an aggregate star rating system:

It clouds the issue. Especially if you are looking at a combined star system – If I come off, will I feel warm coming off?!

4.6 Advising motorcyclists of star rating system

Focus group participants were asked how they thought motorcyclists should be advised of a new star rating system.

The views of the various motorcycle groups were similar and included the following suggestions:

- Target the information to motorcycle riders and more specifically those who are most likely to be purchasing protective gear (ie those who have just got their motorcycle licence)
- Provide a brochure at training courses and when riders obtain their motorcycle licence
- Send information directly to motorcyclists or with their registration renewal
- It is essential to have information (eg brochure and posters) in motorcycle stores at the point of sale
- Provide articles and reviews in motorcycle magazines
- Provide an official website – similar to ‘how safe is your car’ website
- The official website could be referred to on motorcycle club sites and in magazines and brochures

5 Conclusions and Recommendations

Conclusions

Motorcyclist's attitudes to protective clothing

This research study identified that while almost all riders understand the need to wear a helmet and almost always do so, views about the importance of other types of protective gear are not as strong.

An acceptable level of protective gear is generally considered to be a protective jacket, gloves and boots, although the boots may equally be Blundstones, RM Williams boots, work boots or other boots with ankle protection, as specialist motorcycle boots.

While at least the above level of protective gear is usually worn by riders of sports bikes, tourers and cruisers, those riding scooters are generally comfortable with a light jacket and covered shoes, while some scooter riders wear no protective gear at all other than a helmet.

Exceptions to a general rule of wearing protective gear are often made for short trips (eg to the local shops) or if the weather is hot (perhaps a lighter jacket or no jacket may be worn).

There is generally not considered to be a need for specialist motorcycle protective trousers, such as leathers or Draggin jeans. Standard jeans are considered by many riders to provide adequate protection at a more acceptable cost.

Full protective suits and body armour are considered to be very specialist items, generally worn for racing or by sports bike enthusiasts.

Choice of protective gear

The type of motorcycle gear worn is strongly related to the type of motorcycle ridden and choices are primarily made on this basis.

Riders of **sports bikes** and **touring bikes** who are well integrated into the motorcycle community are generally aware of 'good' or reputable brands of specialist protective gear, buy their gear from motorcycle shops, over the internet or second hand, and make their choices on the basis of brand, word of mouth and articles in motorcycle magazines.

Cruiser riders are less likely to choose standard motorcycle protective gear, in favour of image. Open face helmets and leather jackets are more likely to be worn than specialist protective motorcycle gear.

Some riders, particularly **new riders**, **scooter riders** and **women riders** appear to:

- Have less information available to assist them to make choices about protective gear, or
- Have concerns about the lack of availability of well-fitting and attractive gear, and
- Are thus less likely to wear specialist gear
- Scooter riders and some women riders would be more likely to wear protective gear if it looked less 'extreme' and could also be worn as street wear or to work in an office

Overall, comfort and fit and injury protection are the most important factors when riders are selecting protective gear, although decisions are made within the general parameters of 'what suits the type of bike' and the image they aspire to.

Potential use of a star rating system

The results of the internet survey and focus groups indicated that there is substantial support for a star rating system to assist motorcycle riders in choosing protective gear and that a large proportion of riders would use such a system if it was designed to meet their needs.

While there was some concern that a star rating system may increase the cost of protective gear to the consumer, others thought that it may have cost benefits as consumers would be able to select items on the basis of protection rather than price.

Support for a star rating system appears to be strongest among scooter riders and new riders who are less integrated into the motorcycle community, are less likely to read motorcycle magazines and are generally less likely to have networks and other information to assist them to make decisions.

The general preference was for an independent star rating system because:

- It would maximise the amount of gear tested and included
- It would be more likely to include smaller and specialist manufacturers
- It would be more likely to ensure consistency in testing and reporting
- It would be better able to prevent fraud

Irrespective of the type of system introduced, it is important to riders that the system:

- Includes credible motorcyclist participants during design and implementation
- Is managed by an independent organisation such as a government agency or university
- Requires independent testing facilities
- Allows as much gear as possible to be tested and included
- Does not exclude smaller specialist manufacturers due to cost considerations
- Involves displaying the rating on the item, either with a swing tag or discrete label
- Provides information, to indicate exactly what each number of stars means, at the point of sale
- Is publicised broadly, particularly when the system commences

How a star rating system should be constructed

While there was considerable support from the internet survey for a star rating system to address factors other than injury protection (such as water resistance and thermal protection), when the method for achieving this was discussed in the focus groups, it was concluded that a multiple factor star rating system may become over complicated and difficult to achieve.

Further, the more complicated the system, the more difficult it would be to communicate to the consumer and hence the less likely it may be to be used.

On balance, it was considered that a star rating system should:

- Focus on injury protection
- Be very simple
- Be easy to communicate to consumers
- Be as resistant to fraud as possible

Two possible systems could achieve the above criteria:

1. A simple overall five star rating system for injury protection which is constructed by taking into account individual factors such as abrasion resistance, burst strength and maximum 'knife' penetration. The final star rating would be based on the lowest rating achieved across all elements tested.
2. Separate five star ratings for each of the elements such as abrasion resistance, burst strength and maximum 'knife' penetration.

The first option would be most appealing to new riders, scooter riders and non specialist riders as it is generalist, simple and would simplify the process of selecting protective gear.

The second option would be more appealing to specialist riders such as serious sports bike riders and touring bike riders and those who race motorcycles, as it would enable them to select gear on the basis of their individual needs.

A compromise of the two options could be to commence the system with option 1 and gradually move into option 2 for more specialist gear. The gear to be included in option 2 would need to be determined by a committee which included suitable motorcycle riders.

Recommendations

Based on the findings of this research study, it is recommended that:

1. A star rating system is developed to assist motorcycle riders in selecting suitable protective gear
 2. The star rating system is based on injury protection only, at least initially
 3. The star rating system should commence with a simple overall star rating for injury protection which is constructed by taking into account individual factors such as abrasion resistance, burst strength and maximum 'knife' penetration. The final star rating would be based on the lowest rating achieved across all elements tested
 4. An expert committee including motorcyclists be formed to consider a star rating system for individual components of injury protection for specialist gear
 5. The administration of the star rating system should incorporate the following factors:
 - Include credible motorcyclist participants during design and implementation
 - Be managed by an independent organisation such as a government agency or university
 - Require independent testing facilities
 - Allow as much gear as possible to be tested and included
 - Not exclude smaller specialist manufacturers due to cost considerations
 6. Consideration be given to working with manufacturers to develop protective gear that is more acceptable to female riders who ride various types of motorcycles
 7. Consideration be given to working with manufacturers to develop protective gear that is less extreme and more likely to be worn by scooter riders
 8. Further education campaigns be developed to stress the importance for all motorcycle riders to wear protective clothing at all times while riding
- Involve displaying the rating on the item, either with a swing tag or discrete label
 - Provide information, to indicate exactly what each number of stars means, at the point of sale
 - Is publicised broadly, particularly when the system commences