



Bikesafe Evaluation

ANALYSIS OF 2014/15 PRE-WORKSHOP RESPONDENTS

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Executive Summary

This report provides extensive benchmarks regarding the demographics, behaviour, attitudes and opinions of 1,786 riders who attended a BikeSafe workshop over a twelve month period to April 2015, based on one year of responses to the new pre workshop survey. These will form the foundation for evaluation of BikeSafe's progress towards its agreed aims and objectives.

Two behavioural groups are present in BikeSafe bookings, which approximately corresponded to the seven segments covering riders more generally identified in the 2007 TRL report by Christmas et al. The larger group are characterised as 'Dedicated Idealists': this group corresponds to four of the segments identified by Christmas et al, including 'Looking Good Performance Disciples' who are heavily over represented. The other group are 'Careful Pragmatists', corresponding to two segments identified by Christmas et al which are both over represented. One Christmas et al segment, 'Get-There Riding Hobbyists', is split evenly between these two groups.

BikeSafe attendees are a noticeably older cohort than in 2011, and survey respondents are on average older than attendees in general. Unsurprisingly, BikeSafe attendees are also markedly older than injured motorcyclists overall. They are predominantly male, although this varies between rider segments. Attendees most often reside in the South of England, where a disproportionately high number of motorcyclist casualties also live. Some police force such as Suffolk have high levels of resident casualties but lower BikeSafe attendance rates, while in Wales this situation is reversed. A disproportionately large number of survey responses came from riders who live in London; two-thirds of respondents live in the same police force area where they booked their workshop.

The three Mosaic groups most over-represented amongst BikeSafe respondents also have the highest rankings for mean household income, and accordingly survey respondents are substantially over represented among the least deprived communities as measured by the Index of Multiple Deprivation. These groups are under-represented among injured motorcyclists in general. However, riders from younger households on more average incomes are also represented at BikeSafe, as are riders from affluent rural communities.

BikeSafe attendees come from a wide range of riding backgrounds. Around a quarter are new riders with less than three years' experience, while 15% are 'born again' riders who took a break from riding of at least ten years. Born again riders tend on average to ride fewer miles each year. Attendees are split more or less equally between frequent riders (riding at least five days each week) and infrequent riders (riding less than three days each week); and are also almost equally split between undertaking journeys for social or pleasure reasons, and practical journey purposes such as commuting or errands. However very few (only 4%) ride during the summer months alone. Around one attendee in eleven reported involvement in an injury collision over the last 12 months.

More than four out of five attendees had never attended with BikeSafe or accredited training before; the most frequent reason given for not undertaking training in the past was that they had simply not thought about it. It is encouraging that over half of respondents were motivated to attend by a desire for input by expert riders, and a similar proportion believed that BikeSafe provided a route to accredited training.

Responses showed highly safety conscious attitudes: most attendees reported always wearing armoured protective equipment and gave responses implying that they ride defensively. However, 42% admitted to committing speeding or other traffic offences 'quite often' or more.

This detailed background picture will be valuable in interpretation of the forthcoming evaluation study on outcomes from attendance at BikeSafe. Understanding which groups of riders are most receptive to accredited training, and how BikeSafe encourages riders from different demographics to change their attitudes towards safer riding, will greatly expedite decisions about implementation of the scheme in future.

Introduction

Following discussions of the recommendations made by Road Safety Analysis' (RSA) *2013 BikeSafe Evaluation Report*, The BikeSafe Steering Group commissioned RSA and the Transport Research Laboratory (TRL), in conjunction with the Motorcycle Industry Association (MCIA), to overhaul and consolidate existing questionnaires into a single pre workshop survey, with questions repeated on a post workshop survey answered 12 months later. The principal objective of the new pre workshop survey was to determine robust baselines concerning riders attending BikeSafe workshops, in terms of demographics; behaviour and attitudes; and opinions concerning accredited training.

An initial analysis of 6 months' worth of pre workshop responses was undertaken in early 2015. This current report expands on the earlier analysis by looking at a full 12 months' of responses, including the period covered previously. Both pre workshop studies describe initial conclusions drawn from responses to the survey. Future reports will use these baselines to determine outcomes of attendance at BikeSafe workshops relative to the established aims and objectives.

Aims and Objectives of BikeSafe

As part of the review of the 2013 BikeSafe evaluation, new aims and objectives were established. The aims of the National BikeSafe scheme are to:

- Encourage participation in accredited post-test training; and
- Encourage positive rider attitudes and behaviours

In order to evaluate progress towards these aims, BikeSafe will measure the following objectives for workshop attendees who respond to evaluation surveys:

- At least 20% will attend accredited training within a year of attendance.
- A higher proportion will attend accredited training within two years of attendance, with the aspiration to achieve a rate of at least 25%.
- A positive shift in attitudes towards safer riding will be identified, with a view to establishing baselines for further improvement in future.
- Change in specific rider behaviours will be identified, with the aspiration to reduce injury risk.

Scope of this report

The new pre workshop survey was implemented in April 2014, and at time of writing (summer 2015) is being sent out to all riders who make a workshop booking via the National BikeSafe website. The scope of this report covers all survey responses received between 14th April 2014 and 14th April 2015 inclusive. A total of 1,893 respondents completed the pre workshop survey, however, it was determined that 107 of these submitted their responses after their workshop date. These responses were excluded from the analysis, resulting in a total sample size of **1,786 respondents**. Duplicated records were also eliminated, so only each individual's most recent survey response has been taken into account.

Segmentation

As with the November 2014 analysis, TRL has been commissioned to undertake cluster analysis of BikeSafe respondents in order to categorise them into groups and compare them with segmentation work undertaken by Christmas, Young, Cookson and Cuerden in 2009. A full explanation of the methodology and the findings of the cluster analysis are provided in Appendix C – TRL BikeSafe clustering analysis on page 43.

The analysis identified two main clusters which have significant differences in characteristics, as shown in Table 1. Respondents were evenly split between the clusters, with Cluster 1 accounting for 50.8% of respondents and Cluster 2 accounting for 49.2%.

Table 1 - Two cluster summary

Cluster 1: Careful Pragmatists	Cluster 2: Dedicated Idealists
Regarded motivation questions as 'quite unimportant' apart from <i>'get away from everyday life'</i> which was deemed 'quite important'.	The highest proportion of answers for each question were either 'neither important nor unimportant' or 'quite important', except for <i>'pitting self against others'</i> where the highest proportion of answers was 'unimportant'.
	Significantly younger than Cluster 1
	Significantly higher average annual mileage
	Reported riding significantly more for pleasure purposes
	Significantly higher average score for travelling tired
	Significantly less likely to still wear their helmet after dropping it on hard surface
	Significantly less likely to agree that riders should be more aware of blind spots
	More likely to have been injured in a collision

Seven clusters, which were similar to the 2009 analysis but with some key differences, were identified. To account for the differences, the segments have been slightly re-named and these new names are shown in italics throughout the report. Most of these seven clusters fall into one of the two main clusters, with the exception of *'Get-there Riding Hobbyists'* which are nearly equally split between the two clusters.

Table 2 - Seven clusters into two clusters

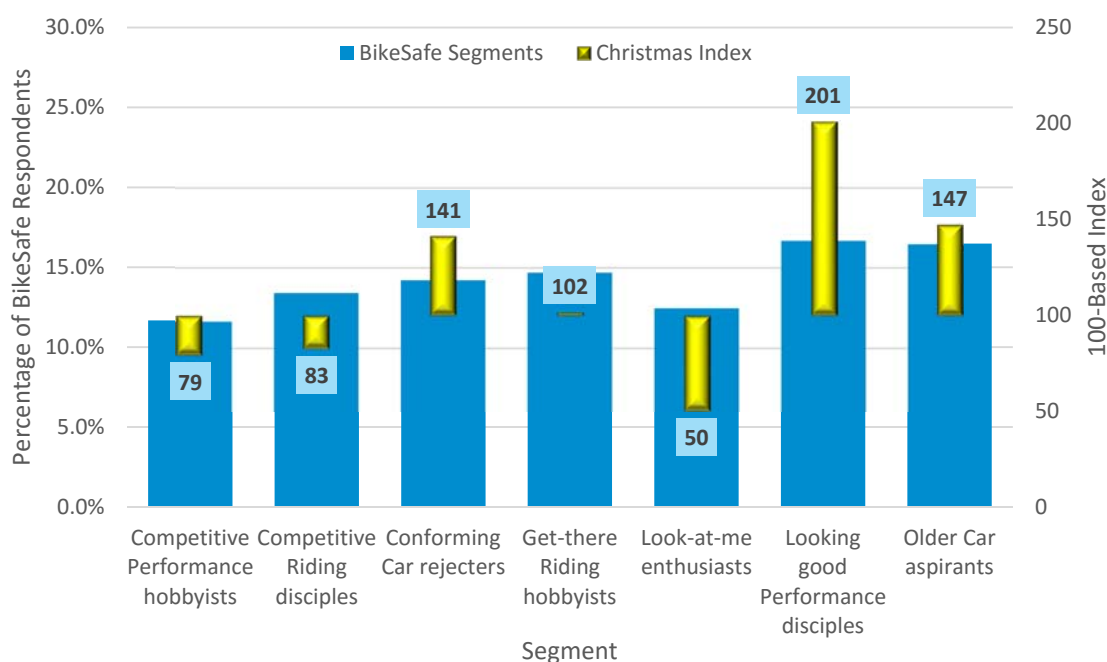
Cluster 1: Careful Pragmatists		Cluster 2: Dedicated Idealists	
<i>Older Car Aspirants</i>	16.5%	<i>Competitive Riding Disciples</i>	13.5%
<i>Conforming Car Rejecters</i>	14.3%	<i>Look-at-me Enthusiasts</i>	12.5%
		<i>Competitive Performance Hobbyists</i>	11.7%
		<i>Looking Good Performance Disciples</i>	16.8%
<i>Get-There Riding Hobbyists</i>		14.7%	

Figure 1 shows the percentage of BikeSafe respondents in each of the seven clusters, indexed against the percentage of each original cluster in the Christmas et al. segmentation. It shows that the percentage of *Get-There Riding Hobbyists* in the BikeSafe sample is almost the same as the percentage of *Riding Hobbyists* in the Christmas et al. sample. There are lower percentages of *Competitive Performance Hobbyists*, *Competitive Riding Disciples* and *Look-at-me Enthusiasts* in the BikeSafe sample than in the Christmas et al. analysis. Conversely, there are higher percentages of *Conforming Car Rejecters*, *Older Car Aspirants* and especially *Looking Good Performance Disciples* amongst BikeSafe respondents than in the previous Christmas et al. research.

THERE ARE HIGHER PERCENTAGES OF *CONFORMING CAR REJECTERS*, *OLDER CAR ASPIRANTS* AND ESPECIALLY *LOOKING GOOD PERFORMANCE DISCIPLES* AMONGST BIKESAFE RESPONDENTS THAN IN THE PREVIOUS CHRISTMAS RESEARCH

These comparisons with the Christmas et al. work; the key characteristics of the segments; and how these clusters differ from previous ones are useful insights into the types of motorcyclist who attends BikeSafe.

Figure 1 - Seven BikeSafe Segments compared to Christmas Segments



The following tables show key characteristics of the seven clusters. The asterisks show results that are highly different from those found in the Christmas et al. paper. Results have been classed as being highly different if there has been a change in the direction of significance or if the result is key to defining the cluster's nature.

Table 3- Conforming Car Rejecters

<i>Conforming Car Rejecters (270, 14.3%)</i>	
Demographics	Significantly older than average
Motivations significantly lower than the average	Not relying on others *
	Pit against others
	Feedback including noise and vibration
	Getting away from everyday life
	A sense of belonging and camaraderie
	Feeling the wind rush past
	Having more power than a car
	Getting places quickly
	Looking good
	Sense of heritage or tradition
Bikes and Gear	Mostly naked and supersport
	Significantly lower rates of wearing armoured boots
	Significantly lower rates of wearing armoured gloves
Accidents and risk	Less likely to be injured in a collision
	Less likely to drive tired

Table 4 - Older Car Aspirants

Older Car Aspirants (312, 16.5%)	
Demographics	Significantly older than average*
Motivations significantly <u>lower</u> than the average	Pit against others
	Feedback including noise and vibration
	Getting away from everyday life
	A sense of belonging and camaraderie
	Feeling the wind rush past
	Having more power than a car
	Getting places quickly
	Looking good
	Sense of heritage or tradition
Bikes and Gear	Significantly lower engine size
	Mostly naked bikes
	Significantly lower rates of wearing a leather jacket than average
	Significantly lower rates of wearing leather trousers than average
	Significantly higher rates of wearing textile jacket
	Significantly higher rates of wearing high visibility clothing

Table 5 – Competitive Performance Hobbyists

Competitive Performance Hobbyists (221, 11.7%)	
Demographics	Significantly younger than average
	Significantly more male than average
Motivations significantly <u>higher</u> than the average	Not relying on others
	Pit against others*
	Feedback including noise and vibration
	Getting away from everyday life
	Feeling the wind rush past
	Having more power than a car
	Getting places quickly
Motivations significantly <u>lower</u> than the average	A sense of belonging and camaraderie
	Sense of heritage or tradition
Bikes and Gear	Mostly naked and super sport bikes
Accidents and risk	More likely to drive tired than average

Table 6 - Look-at-me Enthusiasts

Look-at-me Enthusiasts (237, 12.5%)	
Demographics	Significantly younger than average
Motivations significantly <u>higher</u> than the average	Not relying on others
	Pit against others
	Feedback including noise and vibration
	Getting away from everyday life
	A sense of belonging and camaraderie
	Feeling the wind rush past
	Having more power than a car
	Getting places quickly
	Looking good
	Sense of heritage or tradition
Bikes and Gear	Significantly higher on number of bikes owned
	Significantly less likely to have taken a break
	Significantly lower engine size
	Mostly naked and super sport bikes
	Significantly higher annual mileage
	Significantly higher rates of wearing a leather jacket
	Significantly higher rates of wearing armoured boots
	Significantly higher rates of wearing high visibility clothing
Accidents and risk	More likely to drive tired

Table 7 - Get-There Riding Hobbyists

Get-There Riding Hobbyists (279, 14.7%)	
Demographics	Significantly older than average
Motivations significantly <u>higher</u> than the average	Getting away from everyday life
	A sense of belonging and camaraderie
	Feeling the wind rush past
	Getting places quickly*
	Sense of heritage or tradition
Motivations significantly <u>lower</u> than the average	Not relying on others
	Pit against others
	Having more power than a car
	Looking good
Bikes and Gear	Significantly more likely to have taken a break
	Significantly higher engine size
	Mostly naked and super sport bikes
	Significantly lower annual mileage
	Significantly higher rates of wearing leather boots
	Significantly higher rates of wearing an armoured jacket
Accidents and risk	Less likely to be injured in a collision

Table 8 – Looking Good Performance Disciples

<i>Looking Good Performance Disciples (318, 16.8%)</i>	
Motivations significantly <u>higher</u> than the average	Pit against others
	A sense of belonging and camaraderie
	Having more power than a car
	Getting places quickly
	Looking good*
	Sense of heritage or tradition
Bikes and Gear	Mostly naked and super sport bikes

Table 9 – Competitive Riding Disciples

<i>Competitive Riding Disciples (255, 13.4%)</i>	
Motivations significantly <u>higher</u> than the average	Not relying on others
	Pit against others*
	Feedback including noise and vibration
	Getting away from everyday life
	A sense of belonging and camaraderie
	Feeling the wind rush past
	Having more power than a car*
	Getting places quickly
	Sense of heritage or tradition
Bikes and Gear	Mostly naked bikes
	Significantly higher rates of wearing a leather jacket
	Significantly higher rates of wearing leather trousers
	Significantly lower rates of wearing armoured trousers
	Significantly lower rates of wearing high visibility clothing
Accidents and risk	More likely to drive tired

Demographics

In addition to the insight provided by segmentation of responses, other demographic data are collected, allowing BikeSafe to understand who their attendees are.

Where socio-demographic profiling has been undertaken, respondents from Northern Ireland have been excluded (as IMD and collision data for Northern Ireland are currently unavailable).

Respondents by age and gender

Figure 2 shows the age distribution of 2014 respondents compared to those in the 2013 study (study period of 2011/12). The earlier analysis of the 6 month pre workshop data found that BikeSafe respondents have become noticeably older in recent years. This is reinforced in the 12 months' pre workshop data.

For the 2014 data, 57.1% of the respondents were aged 45 years old or over, compared to 50.3% in the 2013 study. The largest change is in the 55 to 64 year old age group, with an extra 4.8% of respondents in this age band in 2014. (Compared to

all BikeSafe bookings for 2014, the survey respondents are slightly older. The percentage of over 45 years in the booking cohort was 52.9%).

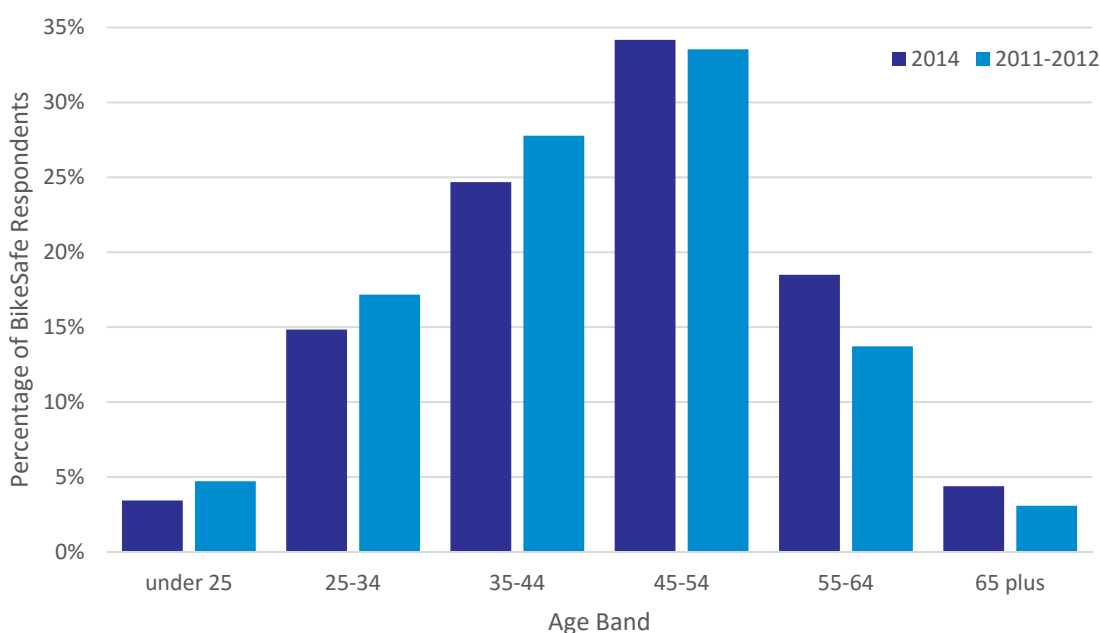


BIKESAFE RESPONDENTS HAVE BECOME SLIGHTLY OLDER IN RECENT YEARS. 57.1% WERE AGED 45 YEARS OLD OR OVER AND THE LARGEST INCREASE IS AMONGST 55 TO 64 YEAR OLDS.

It should be remembered that BikeSafe requires attendees to have a full motorcycle licence and there are two ways to acquire this: there is a minimum age of 24 years via direct access or 21 years via progressive access ("progressive access is a process that allows a rider to take a higher-category practical test if they already have at least two years' experience on a lower category motorcycle."¹). This requirement is reflected in the low number of under 25 year olds responding to the survey.

BikeSafe respondents are still predominantly male - 91.3% were men. There is variation across the segments where 89% of the *Competitive* Riding Disciples are male compared to 96% of *Competitive* Performance Hobbyists. (The percentage of men responding to the survey is similar to the gender distribution of all bookings at 90.9%).

Figure 2 - Age distribution of BikeSafe respondents



Home area

Figure 3 shows the total number of respondents by police force area (not accounting for population or booking rates). It shows that the greatest numbers of respondents were from the police force areas of Metropolitan, Sussex, Thames Valley and Essex.

¹ <https://www.gov.uk/rules-motorcyclists-83-to-88/motorcycle-licence-requirements>

The areas where there were few survey respondents tend to live in those police force areas which do not offer BikeSafe workshops. These include Bedfordshire, Cleveland, Greater Manchester, Norfolk, Scotland, Staffordshire, Suffolk and Warwickshire.

THE GREATEST NUMBERS OF RESPONDENTS WERE FROM THE METROPOLITAN, SUSSEX, THAMES VALLEY AND ESSEX POLICE FORCE AREAS

Figure 3 - Number of BikeSafe respondents by home police force area (total numbers)

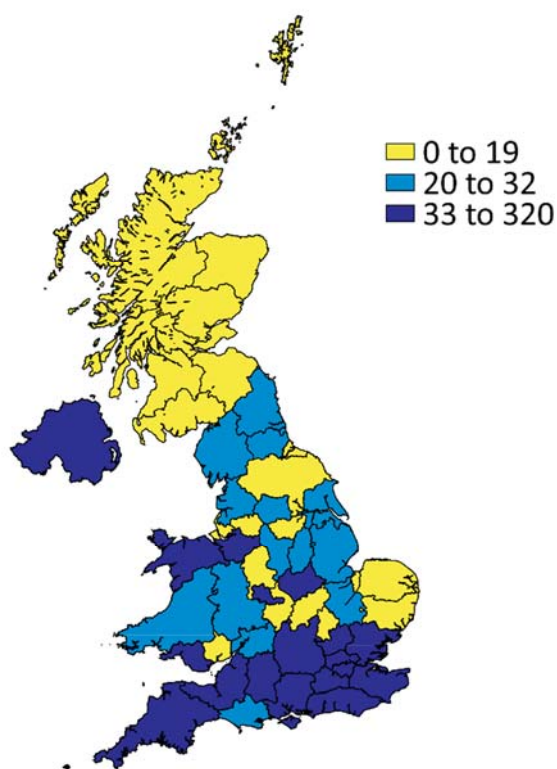
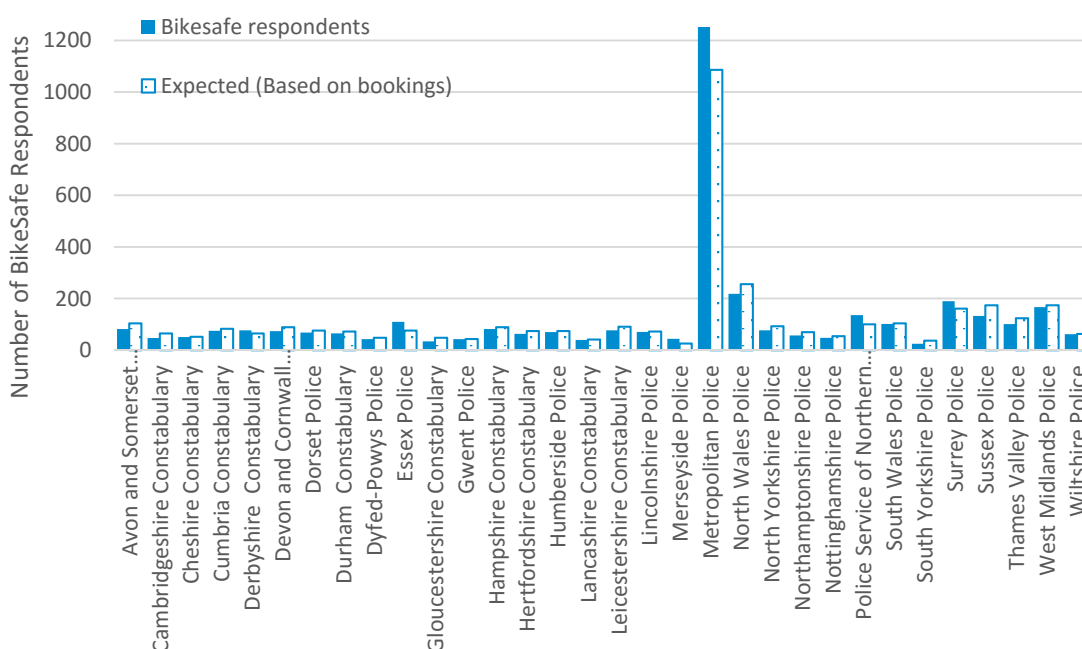
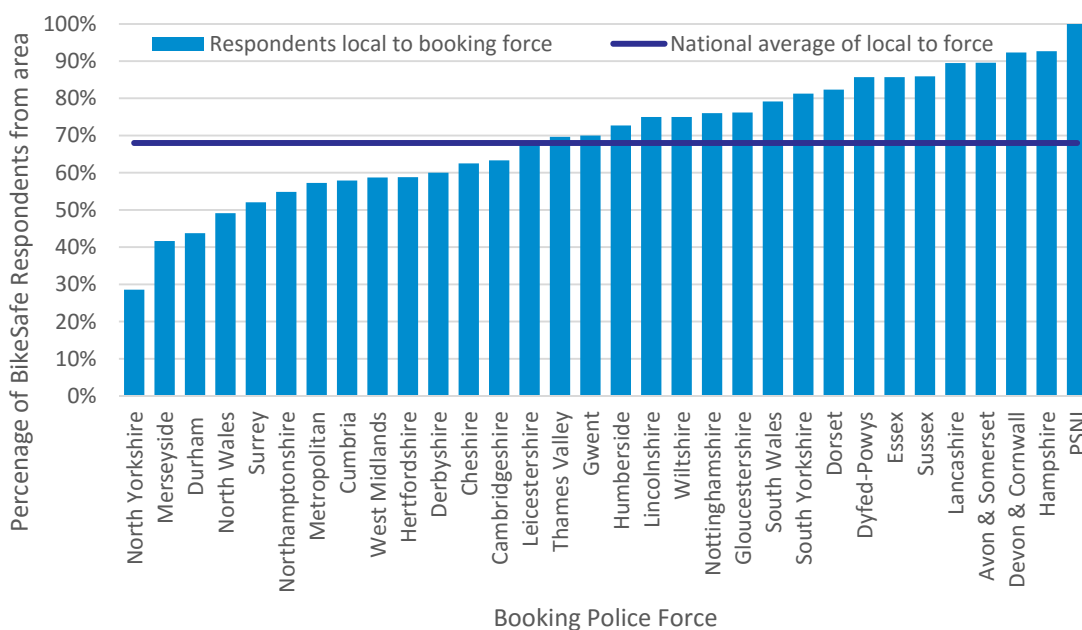


Figure 4 - BikeSafe Respondents by Booking Force compared to total 2014 bookings



Comparisons were made between the booking police force areas of the total 2014 booking cohort and for those who responded to the survey to see if the survey sample was representative. In general, the distribution of workshop bookings and survey responses by police force are fairly similar. There were more respondents amongst those who were attending a BikeSafe workshop in the Metropolitan Police Force than expected, as there were amongst bookings in Essex, Surrey and Northern Ireland. Fewer attendees than expected responded amongst those attending in Sussex, North Wales and Thames Valley.

Figure 5 - Percentage of BikeSafe Respondents living in Workshop area (known postcodes only)



Nationally, two-thirds of respondents live in the police force area they booked the workshop for. The percentages of local bookings differ across the forces offering BikeSafe – 29% of those who booked to attend in North Yorkshire are from the police force area (attendees in North Yorkshire also come from Cleveland, Durham and especially West Yorkshire, with the latter area not offering BikeSafe). At the other end of the spectrum, all of the respondents who booked a BikeSafe workshop in Northern Ireland were unsurprisingly from Northern Ireland.




NATIONALLY, TWO-THIRDS OF RESPONDENTS LIVE IN THE POLICE FORCE THEY BOOKED THE WORKSHOP FOR.

Mosaic profiling

Mosaic profiling has been carried out for respondents in this latest report, as it was on the 6 months' of pre data and in the previous evaluation. As with previous analysis, the three most over-represented groups amongst BikeSafe respondents also have the highest rankings for mean household income. *Thriving families who are busy bringing up children and following careers* (Group D) are more likely to live in valuable detached homes in suburban areas, as do *Established families in large detached homes living upmarket lifestyles* (Group B). *High status city dwellers living in central locations and pursuing careers with high rewards* (Group C) tend to live in valuable urban flats. *Mature suburban owners living settled lives in mid-range housing* (Group E) are still over-represented amongst the 12 month respondents but not as highly as in the 6 months analysis.

However, BikeSafe respondents are not entirely homogenous. This is exemplified by *Younger households settling down in housing priced within their means* (Group H) who typically reside in semi-detached homes and have incomes only slightly higher than average. On the other hand, both *Elderly people with assets who are enjoying a comfortable retirement* (Group F) and *Well-off owners in rural locations enjoying the benefits of country life* (Group A) represent affluent rural communities.



THE THREE MOST OVER-REPRESENTED MOSAIC GROUPS AMONGST BIKESAFE RESPONDENTS ALSO HAVE THE HIGHEST RANKINGS FOR MEAN HOUSEHOLD INCOME. HOWEVER, BIKESAFE RESPONDENTS ARE NOT ENTIRELY HOMOGENOUS - OVER-REPRESENTED GROUPS ALSO INCLUDE YOUNGER HOUSEHOLDS, ELDERLY PEOPLE ENJOYING RETIREMENT AND THOSE LIVING IN AFFLUENT RURAL COMMUNITIES.

Figure 6 - Mosaic of BikeSafe respondents, indexed by GB population

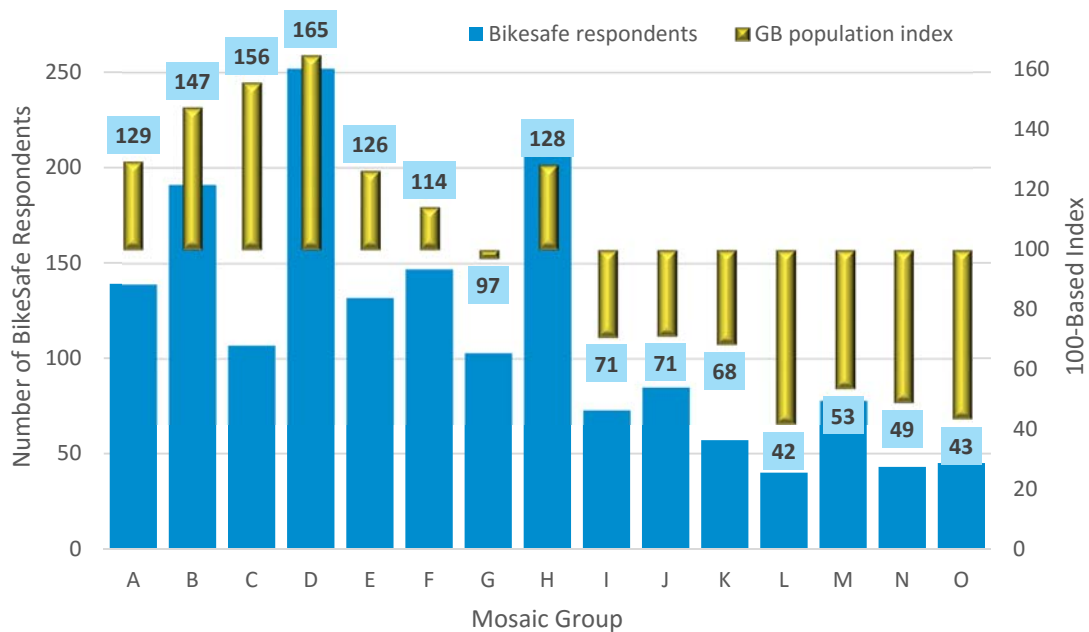
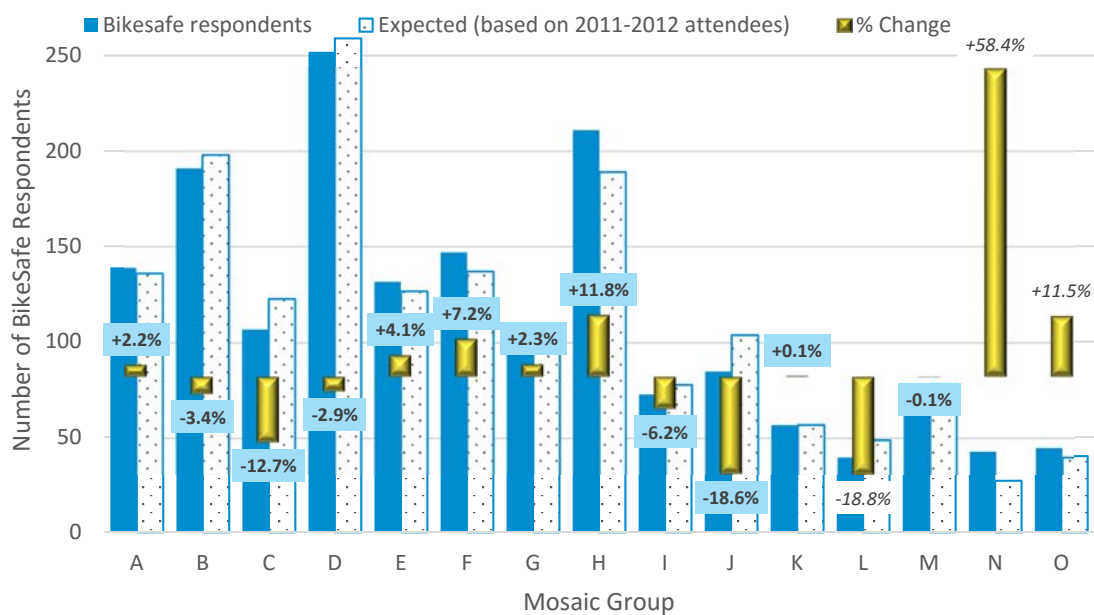


Figure 7 - BikeSafe 2014 Respondents' Mosaic Profile compared to expectation based on 2011-2012 attendees



In order to facilitate comparison with the 2013 evaluation, BikeSafe attendees from 2011-2012 have been re-profiled using the Mosaic 2014 classification. There is evidence that in 2014 a higher proportion of respondents live in rural areas and also of an increase in older riders (reflecting the age analysis). Percentage changes based on small sample sizes have been de-emphasised in Figure 7.

A selection of characteristics of the main BikeSafe respondent Mosaic Groups is shown in Table 10. The tick marks show over-represented characteristics for that Group;

crosses shown under-represented characteristics; and dashes show where the Group does not differ significantly from the norm.

It shows that BikeSafe respondents often live in communities where occupants are affluent families with high mileage, motorcycle ownership and a positive opinion of the police. They tend to be in good health (in terms of being non-smokers, low alcohol consumers and having a tendency to undertake exercise). They are also fans of new technology and use social media. There are clear communication preferences across the Groups, with email being the preferred option and landline contact is disliked the most. More information on the Mosaic Groups is provided in Appendix A – Description of Mosaic Public Sector Groups on page 38.

Table 10 - Over-represented Mosaic characteristics

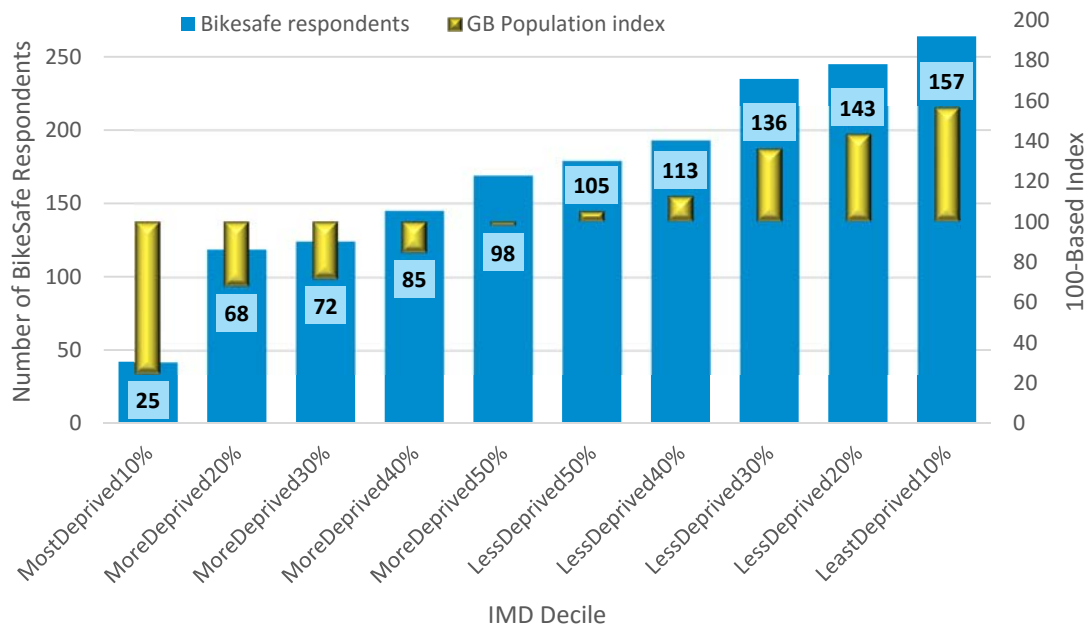
	Group D – 'Domestic Success'	Group B – 'Prestige Positions'	Group C – 'City Prosperity'	Group H – 'Aspiring Homemakers'
Aged 45-54 years	✓	✓	✓	✓
Not deprived	✓	✓	✓	✓
Children at home	✓	✓	✗	✓
Children under 10	✓	✗	✗	✓
Married	✓	✓	✗	✓
Manager/Professional	✓	✓	✓	✗
High household income	✓	✓	✓	✗
High mileage	✓	✓	✗	✓
Bike ownership	✓	-	✗	✓
Good opinion of police	✓	✓	✓	-
Speeding traffic concerns	-	✗	✗	-
Degree qualified	✓	✓	✓	✗
Smoker	✗	✗	✗	✓
Drink alcohol every day	✗	✓	✓	✗
Exercise 4+ hours a week	✓	✓	✓	✓
Like new technology	✓	✗	✓	✓
Use internet very day	✓	✓	✓	-
User Facebook	✓	✗	✓	✓
Use Twitter	✓	✗	✓	✓
Communication Preferences (of adults within the home)				
Mobile call	✗	✗	✓	✓
SMS	-	✗	✓	-
Email	✓	✓	✓	✓
Post	✗	✓	✗	✗
Landline	✗	✗	✗	✗
Prefer not to be contacted	-	-	-	-
Like new technology	-	-	-	-
Use Facebook weekly	-	-	-	-
Use Twitter weekly	-	-	-	-

BIKESAFE RESPONDENTS OFTEN LIVE IN AFFLUENT COMMUNITIES, HAVE HIGH MILEAGE, OWN A MOTORCYCLE AND HAVE A POSITIVE OPINION OF THE POLICE. THEY TEND TO BE IN GOOD HEALTH AND ARE FANS OF NEW TECHNOLOGY.

Index of Multiple Deprivation

BikeSafe respondents disproportionately come from affluent communities, as shown in Figure 8. The most deprived 30% of the GB population are substantially under-represented amongst BikeSafe respondents, while the least deprived 30% are over-represented by nearly as great a margin.

Figure 8 - Index of Multiple Deprivation of BikeSafe respondents, indexed by GB population



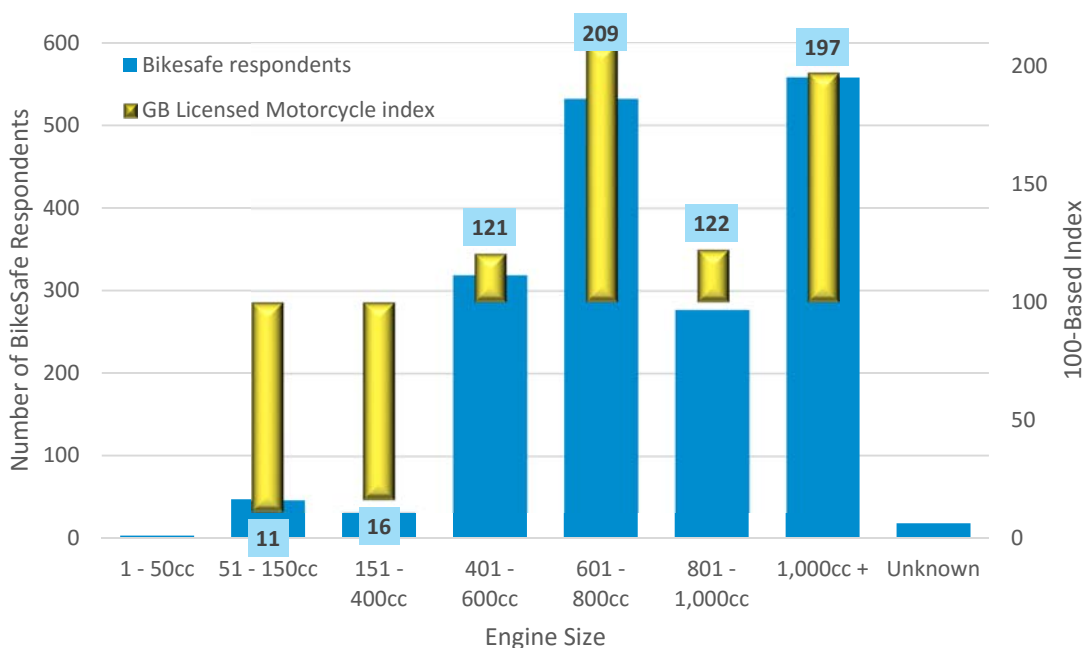
BIKESAFE RESPONDENTS DISPROPORTIONATELY COME FROM AFFLUENT COMMUNITIES.

Riding and Collision History

Motorcycle Type

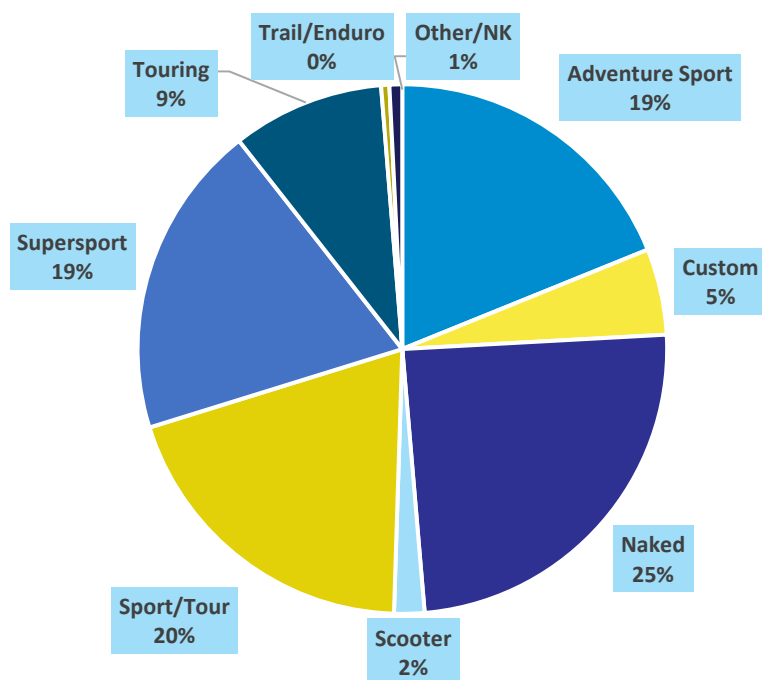
As detailed in the Respondents by age and gender section, BikeSafe attendees must hold a full licence and this places restrictions on the age and bike type of those who can attend. Figure 9 details the low number of respondents whose main motorcycle has an engine size of 400cc or less. The bike types of respondents are indexed against the number of licensed motorcycles in Great Britain in 2014 and shows that the largest numbers of respondents ride motorcycles with engines between 601 and 800cc or 1,000cc or over. It also shows that the proportion of BikeSafe respondents on these bikes is about twice the proportion of similar bikes amongst licensed stock in Great Britain.

Figure 9 - Number of BikeSafe respondents by engine size, indexed against licensed motorcycles in GB in 2014



THE PROPORTION OF BIKESAFE RESPONDENTS RIDING BIKES WITH ENGINES OF 601-800CC OR 1,000CC+ IS ABOUT TWICE THE PROPORTION OF SIMILAR BIKES AMONGST LICENSED STOCK IN GREAT BRITAIN.

Figure 10 - Motorcycle type of BikeSafe respondents



The survey system allows respondents to select the make and model of the motorbike they ride more often. This is linked to a MCI database which groups motorcycles into

categories. Figure 10 shows that the largest percentage of respondents ride 'naked' bikes, followed by 'sport or tour'.

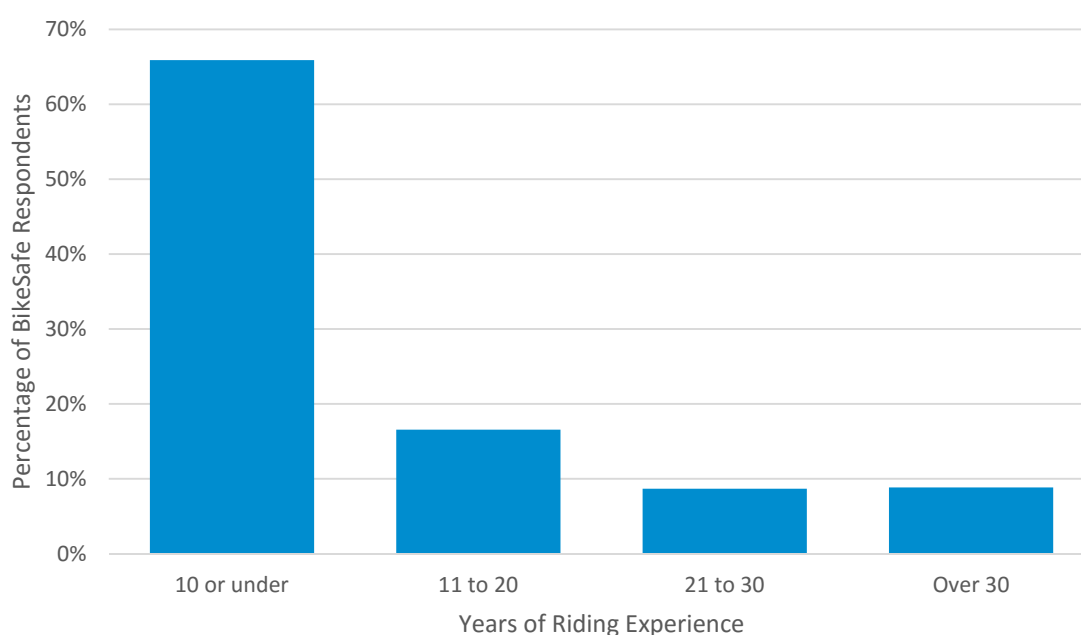
Most BikeSafe respondents own one motorcycle (71%), whilst 18% have two and 10% have 3 or more.

THE HIGHEST PERCENTAGE OF BIKESAFE RESPONDENTS RIDE 'NAKED' MOTORCYCLES

Riding Experience

The mean number of years that BikeSafe respondents have been riding is 11.8 years. However, as Figure 11 shows, two-thirds have been riding for 10 years or less.

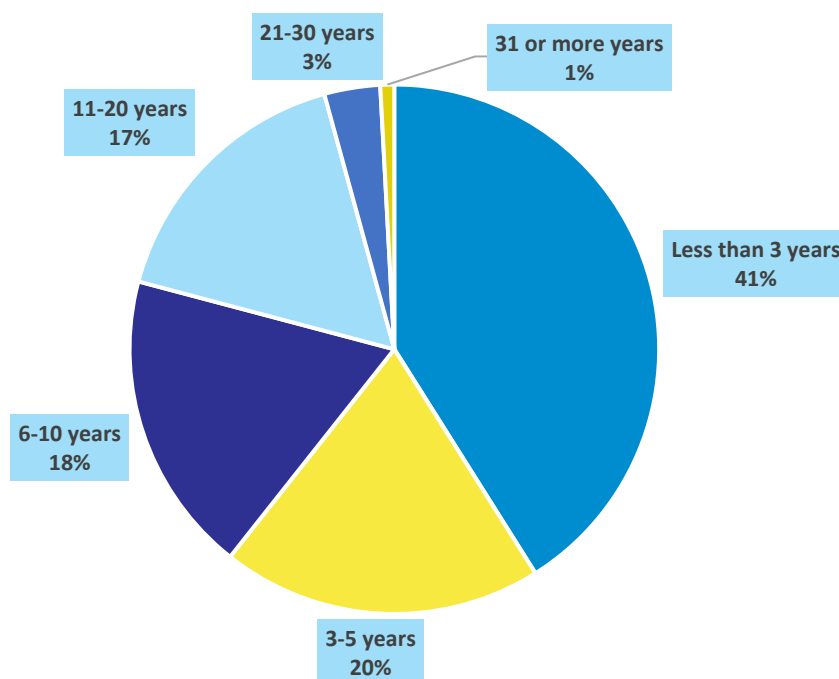
Figure 11 – Percentage of BikeSafe respondents per riding experience band



There is a fairly even split between those who have had a break from riding (of at least one year) and those haven't – 43% of BikeSafe respondents have taken a break, compared to 57% who have not.

TWO-THIRDS OF BIKESAFE RESPONDENTS HAVE BEEN RIDING FOR 10 YEARS OR LESS. JUST UNDER HALF HAVE HAD A BREAK FROM MOTORCYCLING.

Figure 12 - Length of time of riding breaks



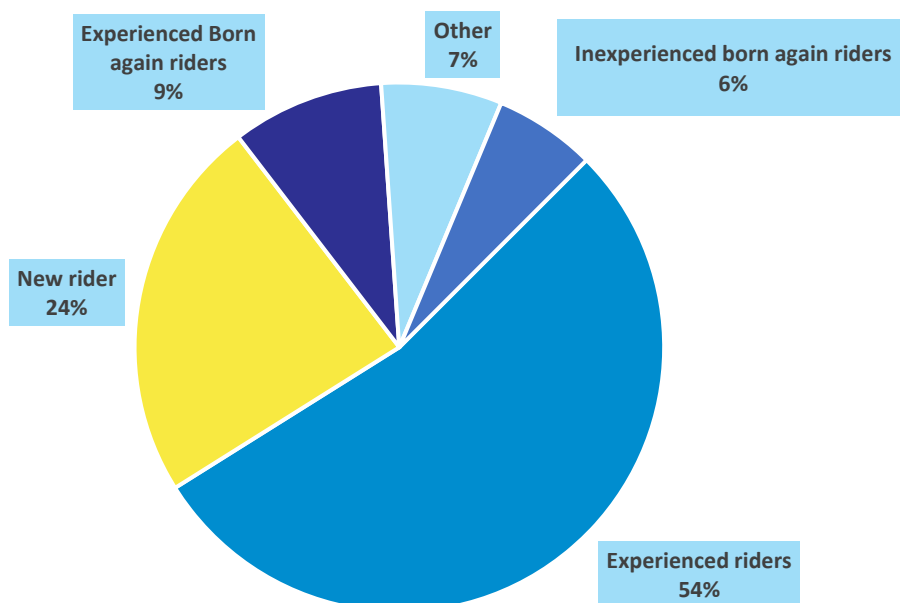
When BikeSafe respondents have experienced a break from riding, there is variation in the length of time the break lasted for. Forty-one percent had a break from riding of less than 3 years whilst 21% had a break of 11 years or more.

In order to provide an insight into the riding experience of the BikeSafe respondents, the years of riding experience were combined with whether or not they took a break (and if so, how long the break was for and when they returned to riding). This led to the creation of four types of rider, based on riding experience.

Over half were classified as 'Experienced Riders', meaning they had at least 3 years' experience and had either a short or no break in riding. A quarter of the respondents were 'New Riders', where they had been riding for less than 3 years and had not had a break from riding. Fifteen percent were classified as 'born again riders', either as 'Experienced Born Again Riders' (9%) (at least 5 years' experience, a break of 10 years or more and had returned to riding at least two years ago); and 'Inexperienced Born Again Riders' (6%) (less than 3 years' experience, a break of 10 years or more and had returned to riding less than 3 years ago). It shows that there is a fairly even split between those with a long unbroken riding career and those who have been riding for a short time and/or have had breaks.

JUST OVER HALF OF BIKESAFE RESPONDENTS COULD BE CALLED 'EXPERIENCED RIDERS' AS THEY'VE HAD AT LEAST TWO YEARS' OF RIDING EXPERIENCE AND A SHORT OR NO BREAK IN RIDING.

Figure 13 – Experience groups of BikeSafe respondents

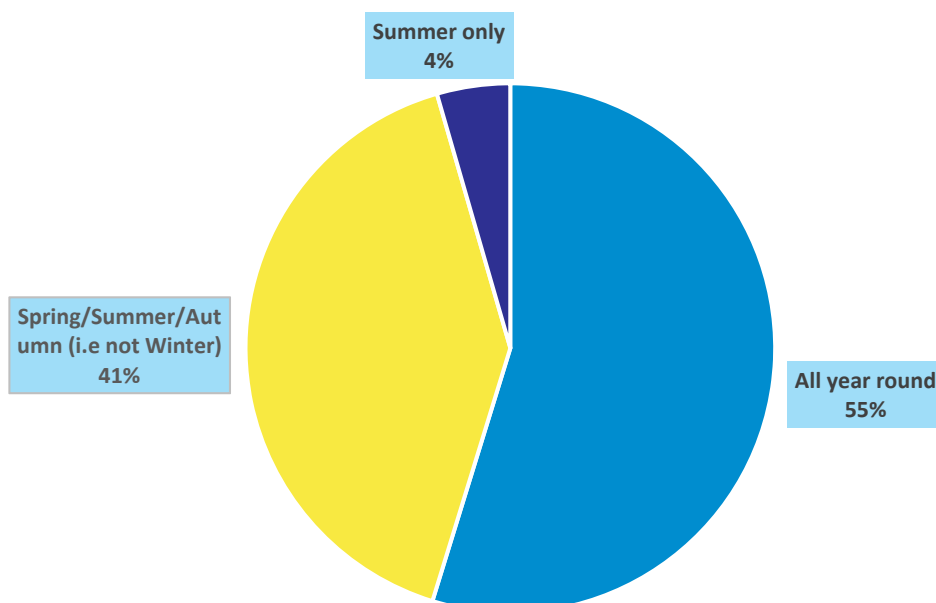


Riding Habits

Figure 14 shows the season or seasons of the year during which BikeSafe respondents tend to ride. It shows that over half ride all year round and 41% ride throughout the year apart from in winter. Just 4% are summer-only riders.

The respondents were also asked how many days, on average, they ride during the season they ride most frequently. The responses were fairly evenly split three ways: just over one-third ride on 1 or 2 days a week; just under one-third ride 3 or 4 days a week; and a further third ride 5 or more days a week.

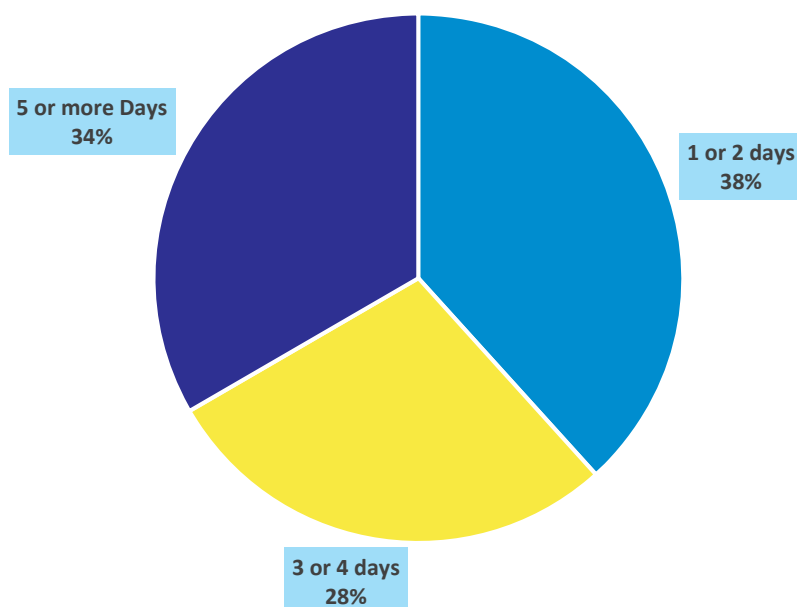
Figure 14 - Season BikeSafe respondents tend to ride in





HALF OF THE RESPONDENTS RIDE ALL YEAR ROUND AND THERE IS A THREE-WAY SPLIT IN THE WEEKLY FREQUENCY OF RIDING

Figure 15 – Average number of days per week riding in season BikeSafe respondents ride the most in



Motorcycle Journey Purpose

BikeSafe respondents were also asked how often they ride their motorcycle for a variety of journey purposes. Different frequency options of 'Often' (every day, every weekday or most days); 'Sometimes' (weekends only, 2-3 times a week or once a week); 'Rarely' (every couple of weeks, once a month or less often); and 'Never' were provided.

Figure 16 shows the breakdown of activities which are undertaken at least once a week (so 'often' or 'sometimes'). As some of the respondents could ride for more than one of these activities at least once a week, the percentages are based on the number of activities and not the number of respondents.

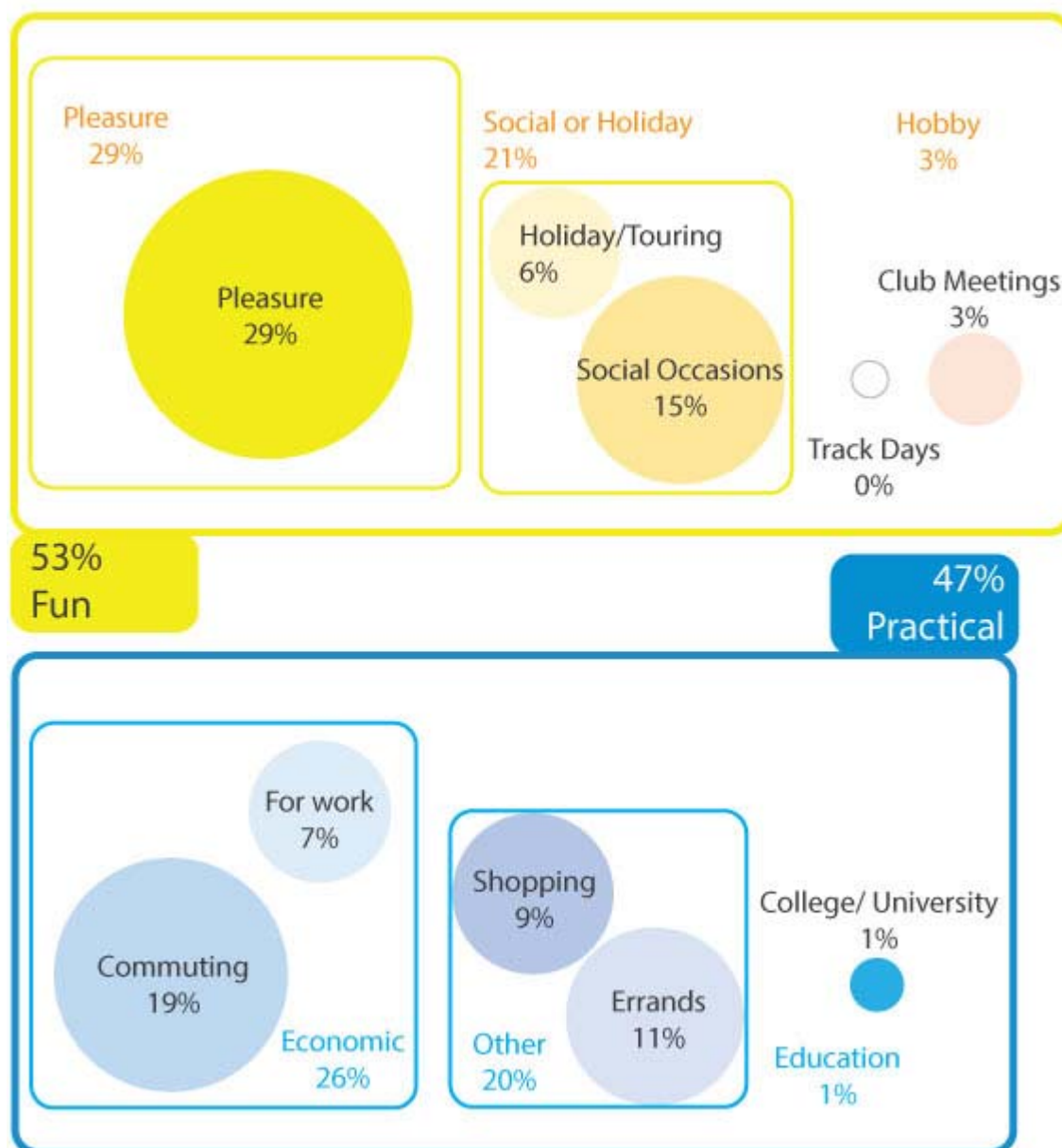


THERE IS A FAIRLY EVEN SPLIT BETWEEN 'FUN' AND 'PRACTICAL' JOURNEY PURPOSES AMONGST BIKESAFE RESPONDENTS

The diagram shows that there is a fairly even split between 'fun' journey purposes (53%) and 'practical' journey purposes (47%). Overall, riding for 'pleasure' accounts for 29% of all the weekly activities, with 'commuting' the next largest group at 19%. 'Social occasions' accounted for 15% of frequent journey purposes with the least

common weekly trips being 'hobby' (club meetings or track days) or 'education' (travelling to college or university).

Figure 16 - Journey purpose of BikeSafe respondents - activities they undertake at least once a week



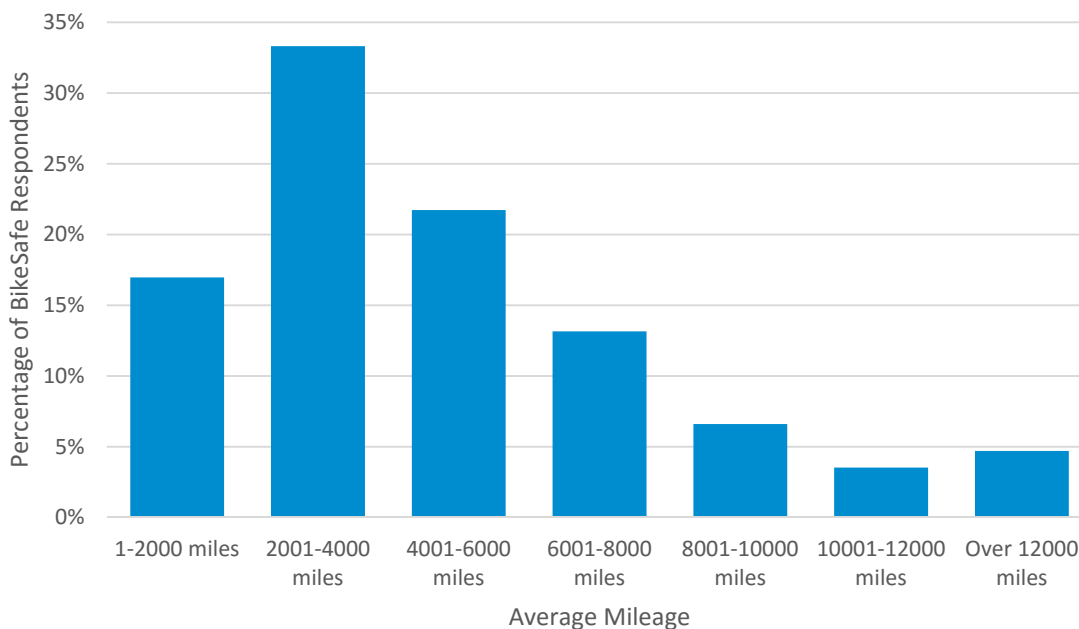
Mileage

BikeSafe respondents were asked to provide their average annual motorcycle mileage, selected as options of seven bands. Nearly one-third of the respondents reported riding between 2,001 and 4,000 miles on motorcycles each year. Twenty-eight percent ride 6,001 miles or more each year.

Average annual mileage has been calculated by taking the mid-point of each band and multiplying this by the number of respondents who selected each band. Overall, BikeSafe respondents ride on average 4,817 miles a year. There is some variation across the experience groups with 'Inexperienced Born Again Riders' reporting the

lowest annual average mileage of 3,730 with 'Experienced Riders' reporting the highest at 5,060 miles a year on average. 'Experienced Born Again Riders' report 4,289 miles a year whilst 'New Riders' state they ride 4,964 miles annually.

Figure 17 – Average annual motorcycle mileage of BikeSafe respondents



ON AVERAGE, BIKESAFE RESPONDENTS REPORT THAT THEY RIDE 4,817 MILES A YEAR.

'INEXPERIENCED BORN AGAIN RIDERS' REPORT THE LOWEST MILEAGE WITH

'EXPERIENCED RIDERS' REPORTING THE HIGHEST MILEAGE

Collision History

BikeSafe respondents were also asked to report their recent collision history. The vast majority (85%) had not had any collisions in the 12 months preceding survey completion whilst 6% had been involved in an injury collision, 5% had been in a damage only collision and 3% both types of collision in the preceding 12 months.

EIGHTY-FIVE PERCENT OF BIKESAFE RESPONDENTS HAD NOT HAD ANY COLLISIONS (INJURY OR DAMAGE ONLY) IN THE LAST 12 MONTHS

Figure 18 - Types of collision in last year amongst BikeSafe respondents

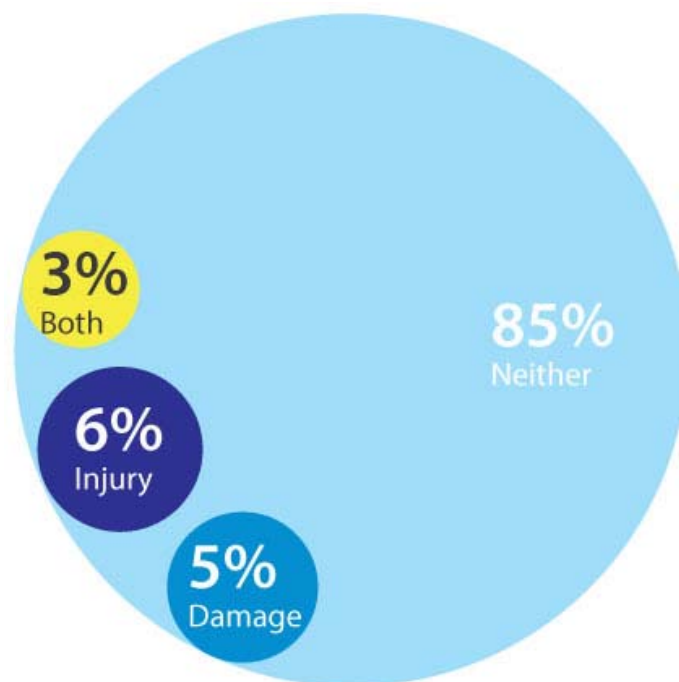
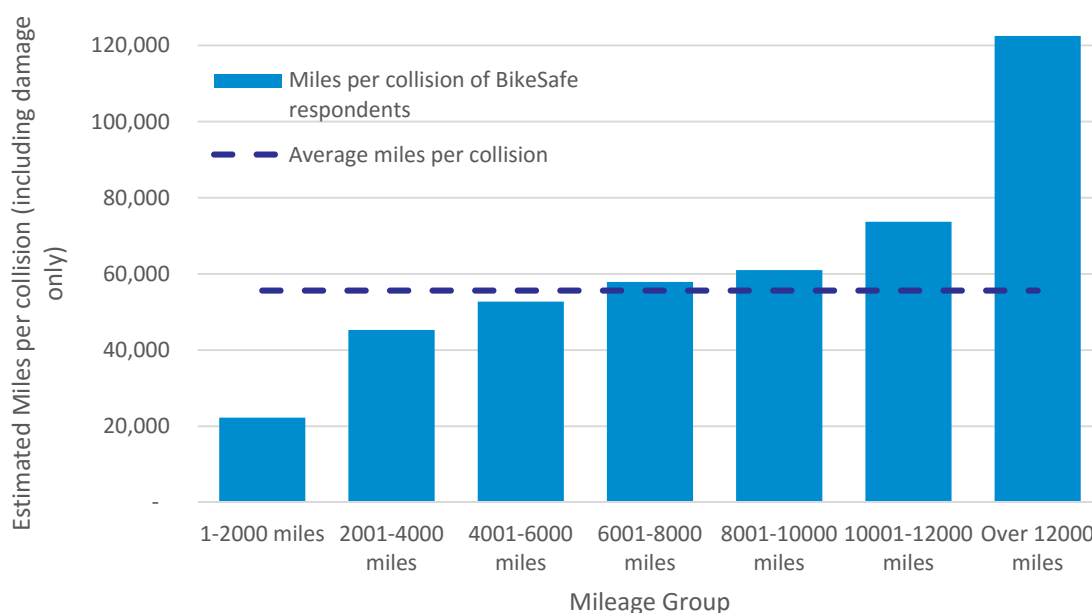


Figure 19 shows the relationship between collision involvement and estimated annual motorcycle mileage for BikeSafe respondents. It shows that for those riders in the middle mileage bands, they were on average involved in any collision for approximately every 55,000 miles travelled. This differs for those with low mileage (who are involved in a collision approximately every 22,000 miles travelled) and for those with higher mileage (who are involved in a collision approximately every 120,000 miles travelled). BikeSafe respondents are involved in an injury collision for approximately every 124,696 miles travelled.

Figure 19 - Miles ridden before each self-reported collision (including damage only) of BikeSafe respondents



Reasons for attending BikeSafe and attitudes to post-test training

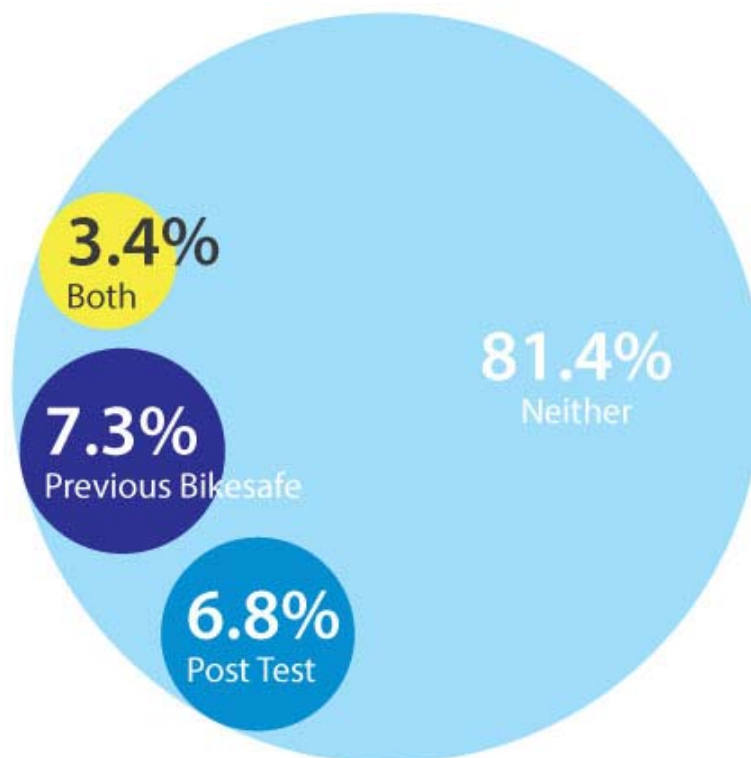
Previous attendance

The survey asked the BikeSafe respondents whether they had already undergone post-test training or had attended a BikeSafe workshop before. Over 80% had not previously attended a BikeSafe workshop or post-test training, with just under 7% having undergone post-test training; just over 7% having previously attended BikeSafe; and 3% had previously undergone both.

Only 10% of all respondents are currently members of an advanced motoring organisation.

MOST RESPONDENTS HAVE NOT ATTENDED A BIKESAFE WORKSHOP OR POST-TEST TRAINING BEFORE.

Figure 20 - Previous BikeSafe or Post-Test Training before BikeSafe



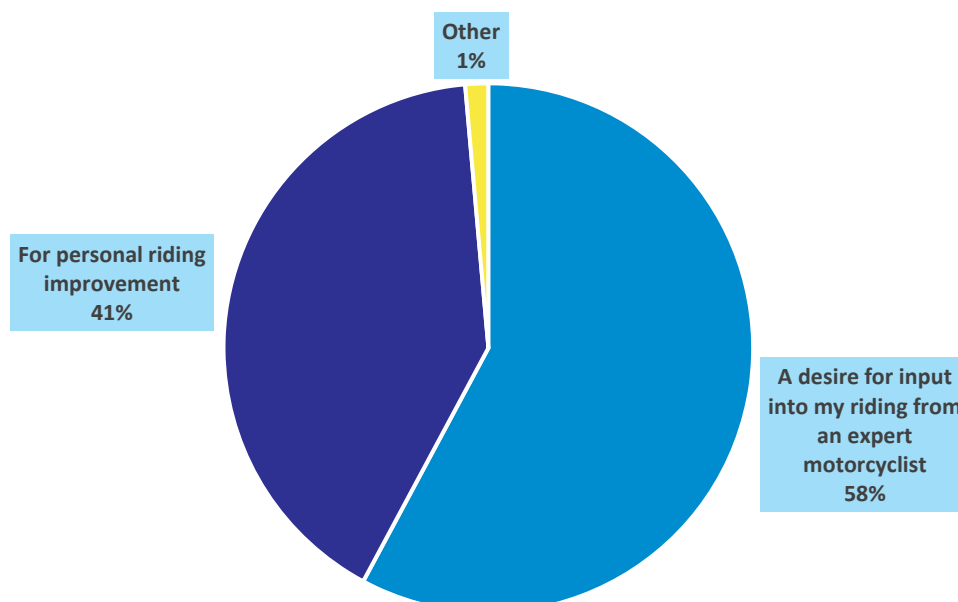
Reason for booking a workshop

Respondents were asked what their most important reason for booking a BikeSafe workshop was. There were three options: a desire for input into their riding from an expert motorcyclist (such as tips and advice, having riding assessed, learning to be a safer rider, learning advanced techniques, as a refresher course); for personal riding improvement (such as identifying bad habits, improving confidence, gaining experience, improving riding skills, because they are a new rider or recently returned

to riding); or other (which included a BikeSafe workshop being an enjoyable day out, that attendance was paid for, it is good value, or something else).

Figure 21 shows that 58% felt that the most important reason for attending BikeSafe was a desire for input into their riding from an expert motorcyclist whilst 41% were attending for personal riding improvement.

Figure 21 - Most important reason for booking a BikeSafe workshop



Post-test training

The respondents were asked if they see BikeSafe as a route towards post-test accredited training in the future. It is encouraging to report that 54% believed that BikeSafe is a route towards accredited training and therefore there is scope for these respondents to actually go on to undertake such training. Thirty-eight percent did not know if it was a route to accredited training and only 8% felt that it wasn't.

OVER HALF OF RESPONDENTS FEEL THAT BIKESAFE IS A ROUTE TO POST-TEST TRAINING. REASONS GIVEN FOR NOT UNDERTAKING POST-TEST TRAINING PREVIOUSLY INCLUDE: 'NOT THOUGHT ABOUT IT' (35%); 'TOO BUSY, LACK OF TIME' (32%) AND 'COST OF COURSES' (15%).

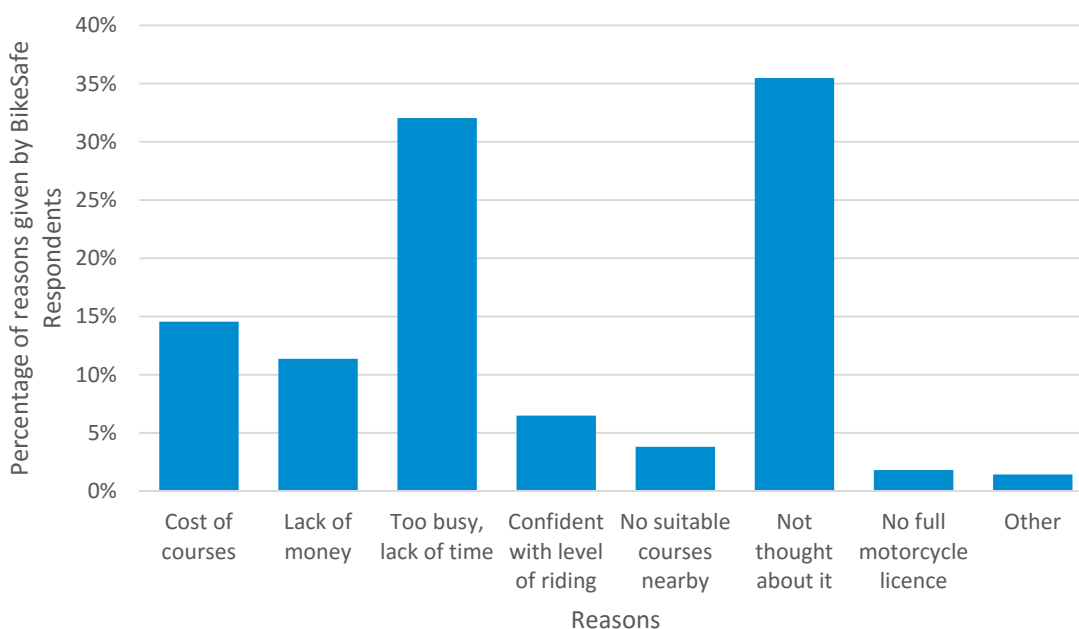
Only 10% of BikeSafe respondents had previously attended a post-test accredited training course. Those who hadn't undertaken accredited post-test training were asked to select the reasons why not. The respondents were able to select multiple answers. One-third of the reasons given for not undertaking post-test training were that the respondents had not thought about it, so this provides BikeSafe with an opportunity to encourage them to consider training. The main barrier to undertaking

accredited post-test training appears to be time – 32% of the selected reasons for not having done training were because they were too busy or there was a lack of time. It seems that practical barriers are not the main reason for not undergoing post-test training: the costs of courses and lack of money accounted for 15% and 11% reasons respectively whilst only 4% of the reasons were that there were no suitable courses nearby.

IT APPEARS THAT BIKE SAFE RESPONDENTS ARE NOT CONFIDENT WITH THEIR LEVEL OF RIDING. 'CONFIDENCE WITH CURRENT LEVEL OF RIDING' ONLY ACCOUNTED FOR 6% OF REASONS FOR NOT HAVING UNDERTAKEN POST-TEST TRAINING. FURTHERMORE, OF THE FREE-TEXT RESPONSES, 10% STATED THAT THEY WERE NOT CONFIDENT ENOUGH WITH THEIR RIDING AND A FURTHER 30% WERE NEW RIDERS.

Interestingly, only 6% of the reasons given for not undergoing training were confidence with current level of riding. This was echoed by some of the respondents who selected 'other' as a reason and who explained why via a free-text response – 10% of those who selected 'other' said that they didn't feel confident enough with their riding to undertake post-test training. A further 30% were new riders and so they hadn't had an opportunity to do training or were waiting to gain more experience first. A quarter of those who said 'other' were planning to undertake training but had not gone through with it, so hopefully BikeSafe will provide the necessary prompt. Seventeen percent of the 'other' respondents provided an answer indicating that they do not like the image or messages provided by current post-test training providers.

Figure 22 - Reasons for not having completed post-test training



Attitudes to safety

Protective equipment

There were a number of questions which gauged the respondents' attitudes to safety. These responses can be used as a baseline in the post-BikeSafe analysis to see if attitudes to safety change at all.

Figure 23 - Protective equipment 'always' used

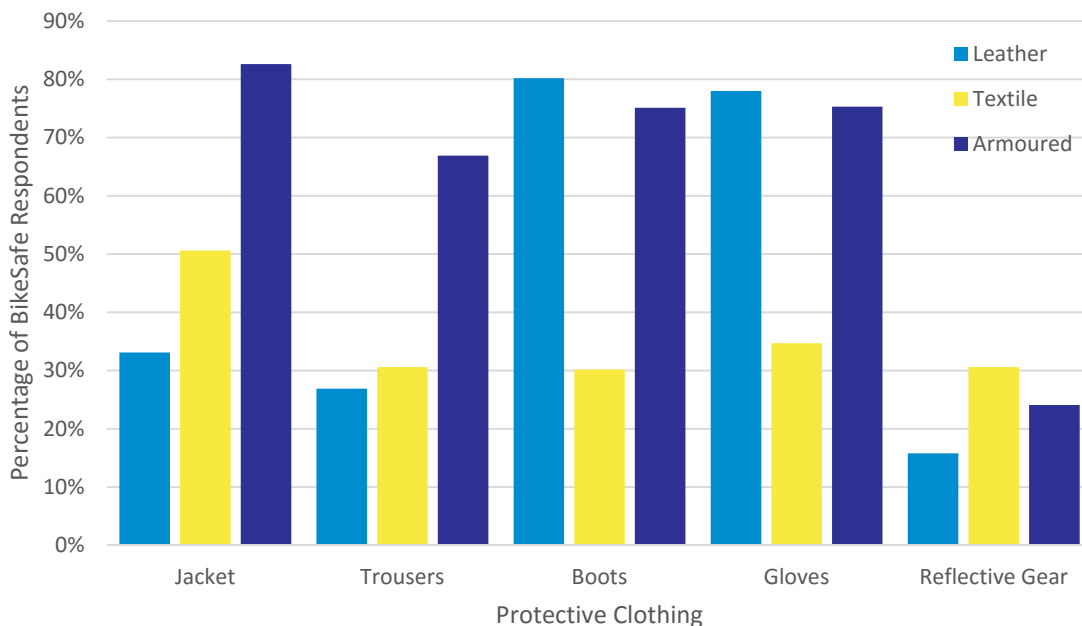


Figure 23 shows the protective clothing BikeSafe respondents say they always wear. Over 80% state that they always wear an armoured jacket; and armoured trousers are always worn by nearly 70% of BikeSafe respondents. Eighty-percent of the respondents always wear leather boots whilst 75% wear armoured boots (suggesting that most wear leather boots which are also armoured). The same occurs with gloves with 78% always wearing leather and 75% always wearing armoured. One-third always wear reflective textile gear.

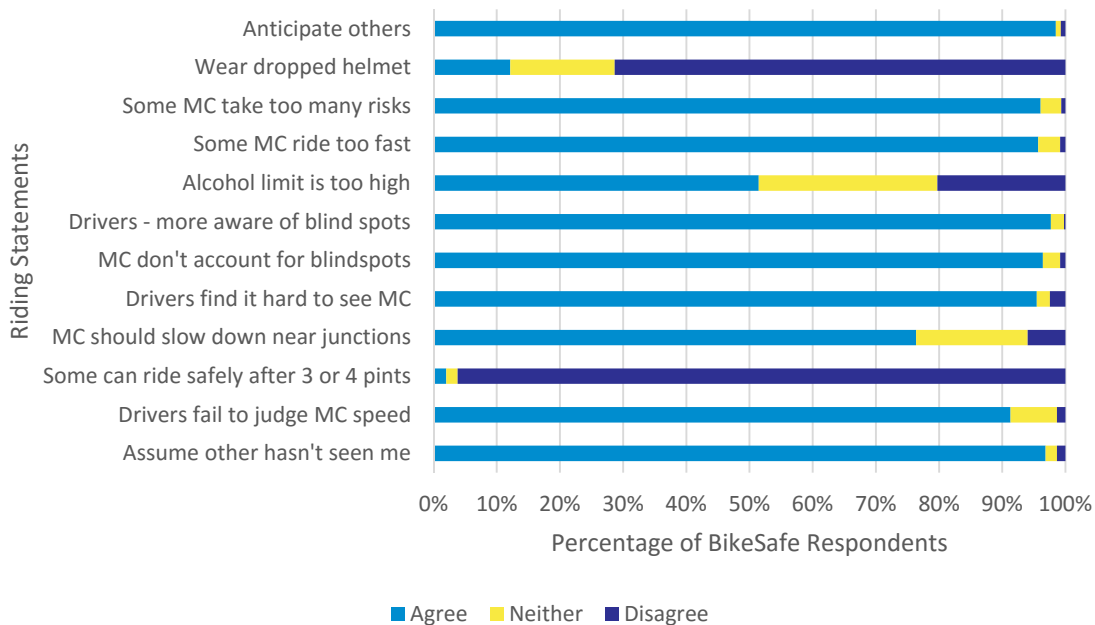
Only 1% state that they own airbag technology clothing whilst 52% always use back armour. Three percent of the respondents state that they always wear a leather one-piece whilst 24% always wear textile high visibility.

Riding Statements

BikeSafe respondents were asked whether they agreed or disagreed with a range of riding statements about their attitudes to safety, what they think of other riders and how they think that drivers behave. BikeSafe respondents tended to agree with most of the statements and state they ride defensively. They also think that some motorcyclists take too many risks. They believe that drivers should be more aware of blind spots and that drivers find it hard to judge how fast a motorcycle is going. The respondents tended to disagree with the negative statements and don't think that riders can ride safely after 3 or 4 pints and will not wear their helmet after dropping it.

The most uncertainty (where they neither agreed nor disagreed) was about wearing a dropped helmet; that the permitted alcohol limit allowed is too high; and that motorcyclists should slow down around junctions to help drivers judge their speed.

Figure 24 – Agreement with riding statements by BikeSafe respondents



BIKESAFE RESPONDENTS REPORT THAT THEY RIDE DEFENSIVELY, THAT THEY THINK SOME MOTORCYCLISTS TAKE TOO MANY RISKS AND THAT DRIVERS SHOULD FIND IT HARD TO SPOT MOTORCYCLISTS. THE HIGHEST LEVELS OF UNCERTAINTY WERE AROUND WEARING A DROPPED HELMET; WHETHER THE ALCOHOL LIMIT IS TOO HIGH; AND WHETHER MOTORCYCLISTS SHOULD SLOW DOWN ON THE APPROACH TO JUNCTIONS.

Motivations for riding

In order to undertake the segmentation comparison with the Christmas et al study, respondents' levels of importance were sought in relation to key statements about motivations for riding.

There were a number of motivations which were deemed important by the whole cohort. These were:

- 'Being able to get places quickly';
- 'Feeling the wind rush past you';
- 'A sense of belonging and camaraderie';
- And the highest percentage felt 'Getting away from everyday life' was important

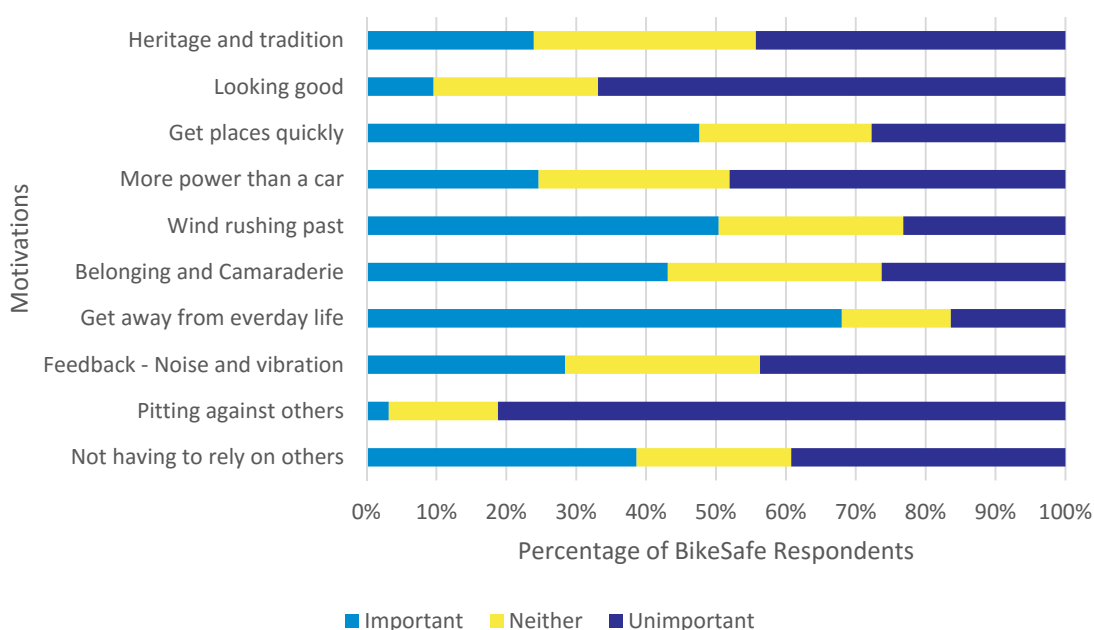
There were also a number of motivations which were deemed unimportant by the BikeSafe respondents:

- 'The fact that I look good on a motorcycle';
- 'Pitting myself against others';
- 'Heritage and tradition';
- 'Feedback including noise and vibration';
- And 'Having more power than in a car the same price'.

Understanding motivations for riding is useful for tailoring the content and marketing of BikeSafe as well as for the marketing of post-test courses.

MOTIVATIONS FOR RIDING AMONGST BIKESAFE RESPONDENTS ARE ABOUT GETTING AWAY FROM EVERYDAY LIFE. WHILST LOOKING GOOD AND COMPETITION ARE UNIMPORTANT TO THEM.

Figure 25 - Motivations for riding amongst BikeSafe respondents



Behaviour

A number of questions asked the respondents how often they engaged in various types of behaviour, ranging on a 6-point scale from 'never' to 'nearly all the time'. There were 13 statements about exceeding the speed limit in different situations; riding aggressively; and violating traffic rules (such as overtaking on double white lines or crossing junctions when the traffic light is red). Respondents were reminded that their answers are confidential and that individual responses will not be examined.

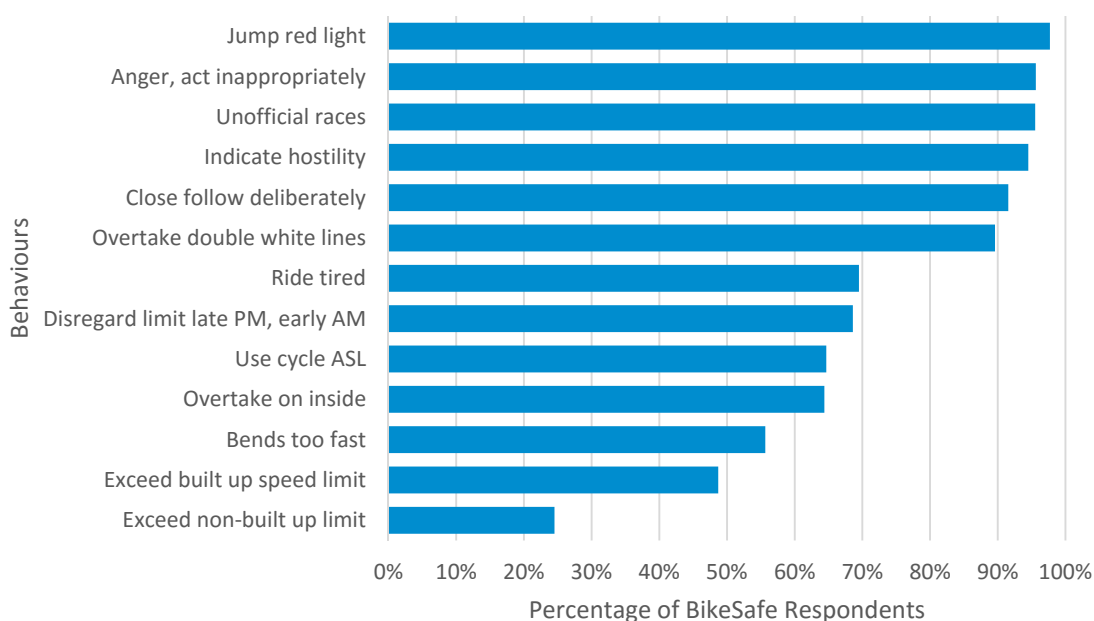
It needs to be remembered that respondents were completing a survey before attending a police-led scheme so the answers could be an under-representation of the behaviours they actually engage in. However, there are different responses to the

individual different behaviours. Figure 26 shows the percentages of respondents who would never undertake the various behaviours. It shows that only 25% stated that they never exceed the speed limit on non-built up roads (50, 60 or 70mph). Other speed-related behaviours (such as exceeding 20, 30 or 40mph limits or approaching bends too fast) were never undertaken by 49% and 56% respectively. Over 90% of the respondents stated that they never “ride especially close the vehicle in front as a signal for it to go faster or get out of the way”; “have a dislike to particular road users and indicate hostility by whatever means they can”; “get involved in unofficial ‘races’ with other road users”; “angered by another road user’s behaviour, act inappropriately;” or “cross a junction knowing that the traffic lights are at red.”

BIKESAFE RESPONDENTS ARE LEAST LIKELY TO SAY THAT THEY NEVER SPEED WHILST RIDING BUT ARE MOST LIKELY TO SAY THAT THEY NEVER JUMP RED LIGHTS OR GET ROAD RAGE. THEY ARE MOST LIKELY TO ADMIT TO SPEEDING OFTEN.

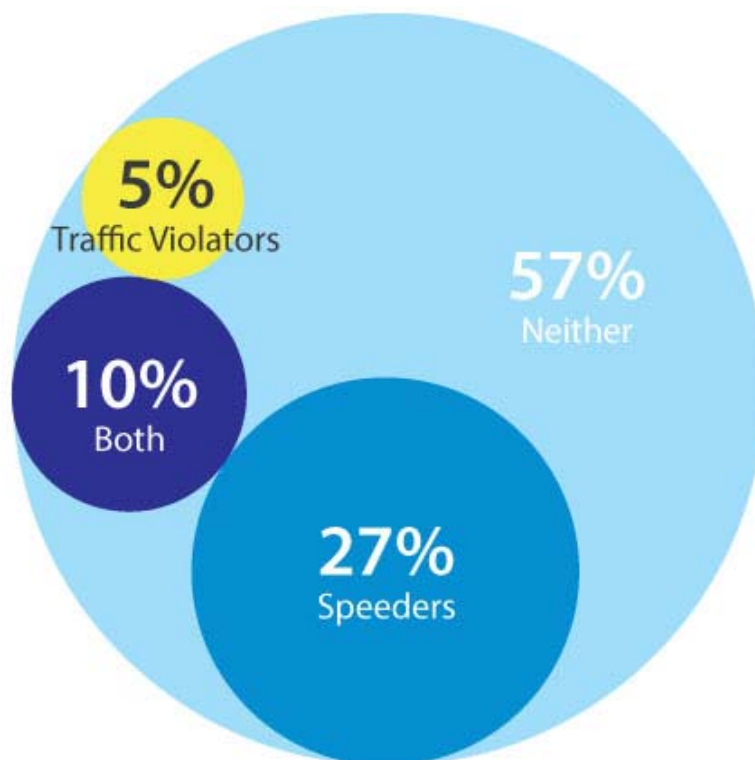
Future comparisons of these self-reported behaviours and hazard perception questions in the survey will be made at the post-BikeSafe analysis stage. Other studies looking at comparing reported behaviour with actual behaviour will also be used to gauge levels of under-reporting.

Figure 26 - Behaviours respondents state they 'never' do



Looking at the behaviours which BikeSafe respondents would admit to doing ‘quite often’, ‘frequently’ or ‘nearly all the time’, there are certain riding behaviours that some are willing to admit to. Figure 27 shows that whilst just over half do not over speed or violate traffic rules, a quarter admit to speeding (exceeding the non-built up and/or the built up speed limit). A further 5% admit to traffic violations (overtaking on double white lines, using the advanced stopping line and/or jumping red lights) whilst the final 10% admit to regularly undertaking both sets of behaviours.

Figure 27 - Behaviours BikeSafe respondents admitted to doing 'quite often', 'frequently' or 'nearly all the time'



Comparisons with Collision Involved Motorcyclists

The following analysis makes comparisons between collision involved motorcyclists (as reported in STATS19) and BikeSafe respondents. Respondents from Northern Ireland have been excluded from the analysis as collision data in the province is not generally amalgamated with the rest of the UK. As over 90% of BikeSafe respondents ride a motorcycle with an engine over 500cc, only larger bikes have been included in the comparative collision analysis. The time period of reported collisions covers 2009 to 2013.

Figure 28 shows the age of BikeSafe respondents indexed against the number of riders of over 500c motorcycles who were involved in reported injury collisions in Great Britain between 2009 and 2013. It shows that even amongst the larger engine motorcycle riders, BikeSafe respondents are older than those involved in collisions. It also shows that under 45 year olds are under-represented compared to the national proportions of collision-involved riders.

BIKE SAFE RESPONDENTS ARE OLDER THAN THOSE INVOLVED IN REPORTED INJURY COLLISIONS (OVER 500CC ENGINES ONLY). ALL OF THE MOSAIC GROUPS OVER-REPRESENTED COMPARED TO THE GB POPULATION ARE ALSO OVER-REPRESENTED COMPARED TO COLLISION-INVOLVED RIDERS. SIMILARLY, BIKE SAFE RESPONDENTS ARE LESS DEPRIVED THAN THOSE INVOLVED IN CRASHES.

Figure 28 - Number of BikeSafe respondents by age, indexed against GB collisions involved motorcyclists (Over 500cc), 2009-2013

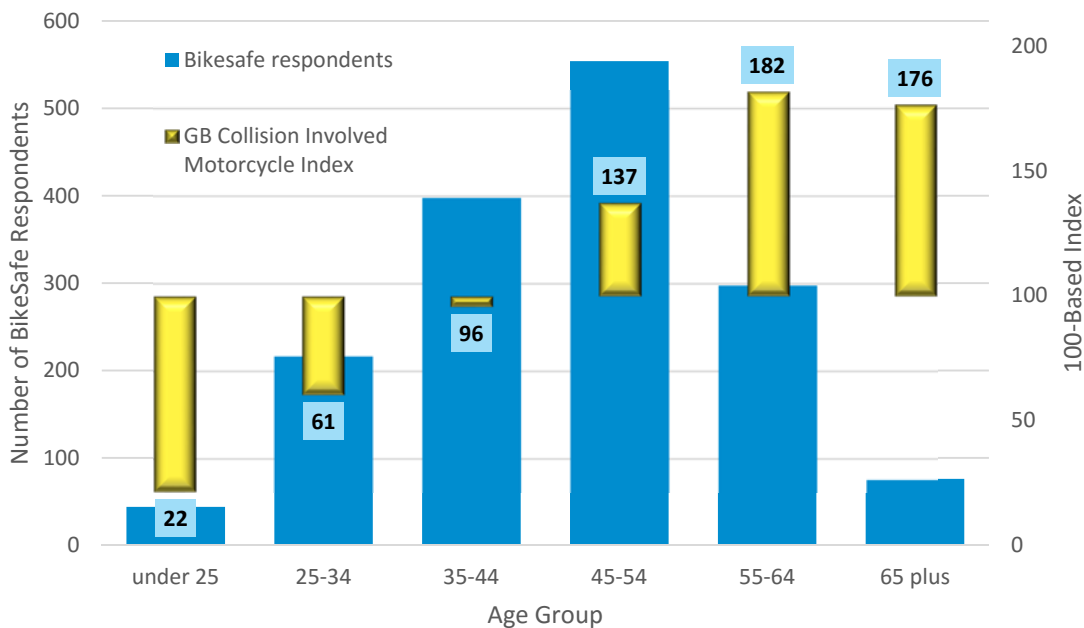


Figure 29 shows similar comparisons for the Mosaic Groups of collision-involved riders and BikeSafe respondents. All of the Groups over-represented compared to the GB population are also over-represented compared to GB collision involved riders.

There are some variations in levels of over-representation: compared to riders involved in crashes, BikeSafe respondents from Mosaic Group B (*Established families in large detached homes living upmarket lifestyles*); Group F (*Elderly people with assets who are enjoying a comfortable retirement*); and Group A (*Well-off owners in rural locations enjoying the benefits of country life*) are even more over-represented than they are compared to the GB population. Conversely, whilst Group D (*Thriving families who are busy bringing up children and following careers*) and Group C (*High status city dwellers living in central locations and pursuing careers with high rewards*) are over-represented compared to collision-involved riders, they are not as over-represented as they were against the GB population. Respondents from Group E (*Mature suburban owners living settled lives in mid-range housing*) and Group H (*Younger households settling down in housing priced within their means*) represent a similar proportion of the BikeSafe cohort as they do crash-involved riders (whereas they are over-represented compared to the GB population).

BikeSafe respondents are over-represented in the least deprived communities of the country, compared to collision-involved riders, at similar levels to their over-representation compared to the GB population. BikeSafe respondents, therefore, tend to be less deprived than the British population in general and motorcyclists involved in injury collisions.

Figure 29 - Number of BikeSafe respondents by Mosaic, indexed against GB collisions involved motorcyclists (Over 500cc), 2009-2013

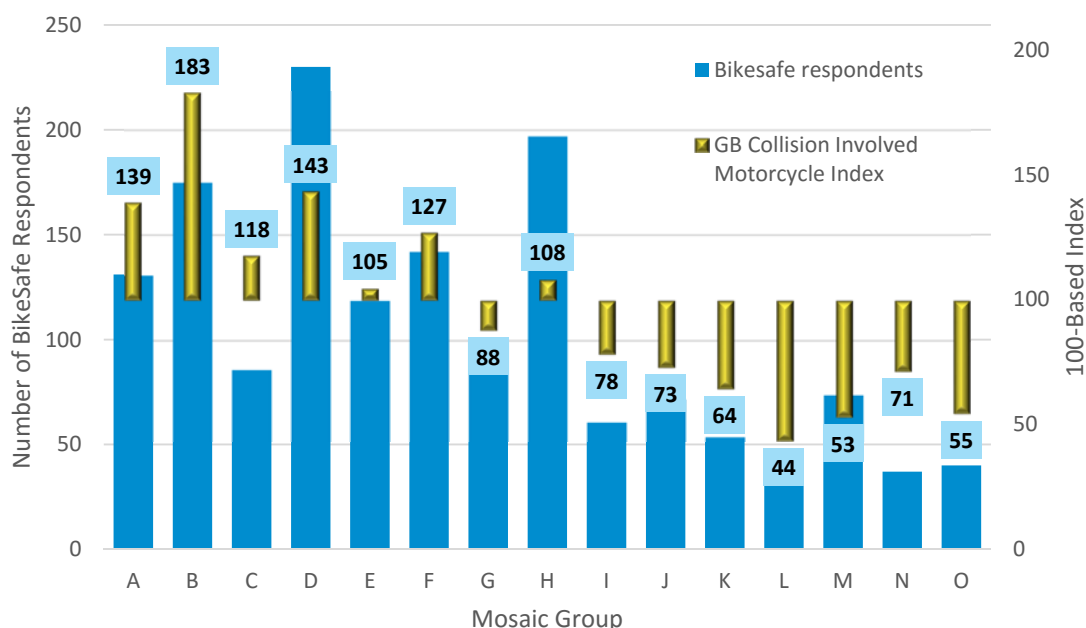


Figure 30 - Number of BikeSafe respondents by IMD, indexed against GB collisions involved motorcyclists (Over 500cc), 2009-2013

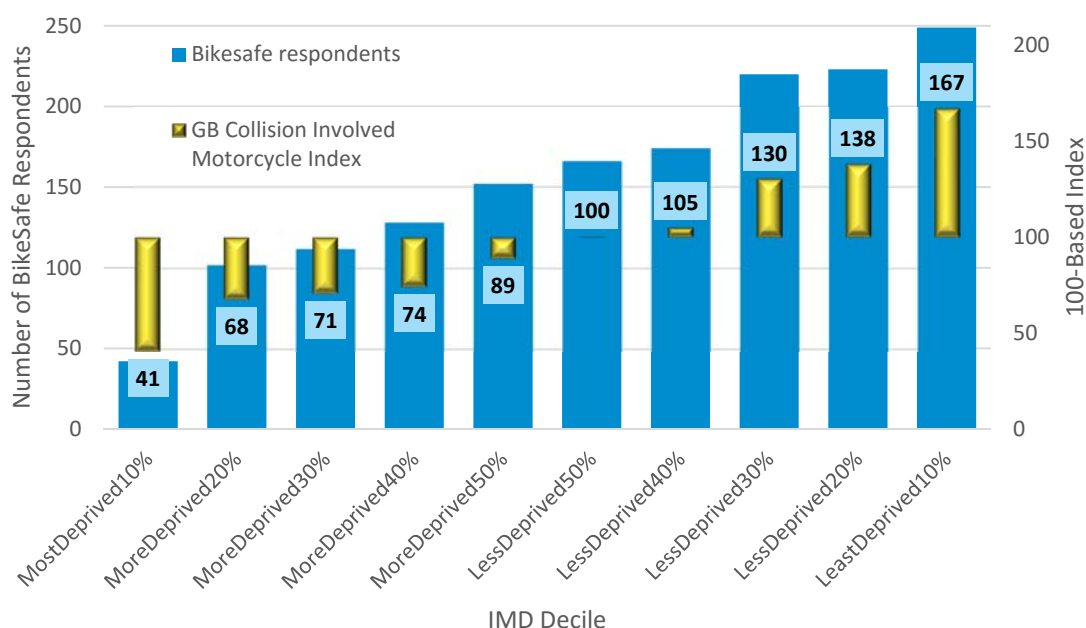


Figure 31 and Figure 32 compare the home police force area of collision-involved motorcyclists with the home police force area of BikeSafe respondents per head of population. It shows that there are concentrations of resident motorcyclists involved in collisions in the East and South East and whilst there are high numbers of BikeSafe respondents from Surrey, Sussex and Wiltshire Police Forces (which also have high numbers of collision-involved riders), other forces with high collision-involved

concentrations don't have high numbers of respondents (often because they don't hold BikeSafe workshops).

Figure 31 - Collision involved rider rate per 100,000 adult population (Over 500cc only)

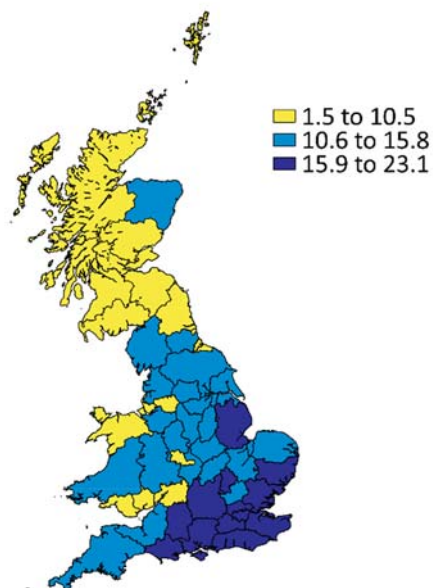
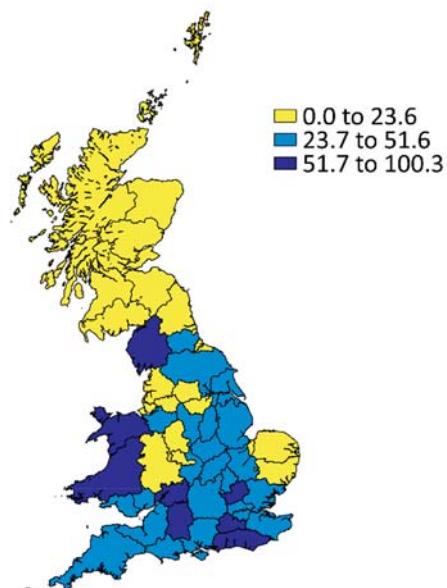


Figure 32 - BikeSafe respondent rate per 1,000,000 adult population



Appendix A – Description of Mosaic Public Sector Groups

	Description	UK % of Population	BikeSafe Index
A	Well-off owners in rural locations enjoying the benefits of country life	6.6%	123
B	Established families in large detached homes living upmarket lifestyles	7.6%	150
C	High status city dwellers living in central locations and pursuing careers with high rewards	3.9%	144
D	Thriving families who are busy bringing up children and following careers	9.0%	158
E	Mature suburban owners living settled lives in mid-range housing	6.2%	138
F	Elderly people with assets who are enjoying a comfortable retirement	7.5%	128
G	Householders living in inexpensive homes in village communities	6.6%	99
H	Younger households settling down in housing priced within their means	9.6%	127
I	Residents of settled urban communities with a strong sense of identity	5.9%	62
J	Educated young people privately renting in urban neighbourhoods	6.9%	72
K	Mature homeowners of value homes enjoying stable lifestyles	4.8%	67
L	Single people privately renting low cost homes for the short term	5.6%	36
M	Families with limited resources who have to budget to make ends meet	8.5%	59
N	Elderly people reliant on support to meet financial or practical needs	5.3%	53
O	Urban renters of social housing facing an array of challenges	6.0%	37

Imagery for Mosaic groups typically overrepresented in BikeSafe bookings

Group B (left) relative to over 500cc biker casualties, and Group D (right) relative to population



Imagery for Mosaic groups typically underrepresented in BikeSafe bookings

Group O (left) relative to population, and Group L (right) relative to over 500cc biker casualties



Analysis and imagery concerning Mosaic Public Sector is used by RSA under licence from Experian plc. For more information on Mosaic Groups and Types, refer to RSA's Mosaic Group Summaries or visit Experian's Interactive Guide at:

<http://www.segmentationportal.com/>

Appendix B – Other reasons for having not undertaken post-test training

Waiting to learn more before I do it

New Rider

Lacking confidence in my abilities

Not Confident

But plan to complete

Plan to

I have heard that some advanced courses are encouraging aggressive riding. I'm not an aggressive rider.

Dislike course

Course dates often conflict with other plans and there seems considerable travel involved

Other

Not long since passed test and gaining experience

New Rider

Wanted to gain some experience first, plan to do in the future

New Rider

Only recently passed but am considering further training

New Rider

Purely the busyness of work and commuting

Other

New rider

New Rider

Nervous (due to lack of knowledge) about expectations of pre-requisite ability

Not Confident

I have been meaning to, just haven't got round to it

Plan to

May consider after BikeSafe

Plan to

I have not paid for IAM course but must still do it

Plan to

Did not think about it when I did have the time/money, things have changed, I am thinking about it now.

Plan to

I have just qualified on 21st July and was advised to have 4-5 months of riding before getting more training but actually I wanted to do it before now and a friend of mine has done the IAM course and said how good it was so yes after this one.

New Rider

Have only recently lost confidence in my riding ability

Not Confident

I started a RoSPA course but disappointed with course content.

Dislike course

Haven't got round to it, only passed a few months ago.

New Rider

BikeSafe was one of several schemes mentioned by my instructor, so chose this

New Rider

I do not feel I would fit in with the ingrained "Advanced Rider" mentality

Dislike course

From my research on advanced training, as a vulnerable road user I know that the safest option isn't always what advanced schools consider the right option which means that rider best interests are not being considered.

Dislike course

Just got my first big bike

New Rider

Put it off until later

Plan to

I have completed non accredited post- test training in the past

Other

IAM riders tend to be critical and arrogant rather than supportive

Dislike course

Does not really reduce insurance premium after looking into it

Other

Difficult in finding them

Other

Only recently got back to biking, so am considering it

Plan to

I was in the RAF and shortly after passing my test (1974) I was posted abroad, never thought about it afterwards.

Plan to

Appendix C – TRL BikeSafe clustering analysis

BikeSafe clustering analysis – May 2015

Introduction

This analysis aimed to categorise the motor cycle riders who had completed the BikeSafe questionnaire into distinct groups. Previous research by Christmas, Young, Cookson, & Cuerden (2009) identified seven groups of riders based on motivations to ride and used a combination of qualitative research and statistical analysis to form a description of each group. The groups were characterised as car rejecters, car aspirers, performance hobbyists, performance disciples, riding hobbyists, riding disciples, and look at me enthusiasts. This research also identified 10 questions that reliably segmented their data; these questions were used in the current questionnaire to classify the riders into these previously identified groups. However, from Christmas et al. (2009) it was not possible to identify the exact model used to classify the riders into the seven clusters. Therefore it has been necessary to attempt to replicate the segmentation using the same method and questions.

Method

The method of analysis that was used was the same as the analysis performed in November 2014. The data were analysed using K-means cluster analysis. The data were forced into a seven cluster solution to match as far as possible those clusters identified in this previous research.

Descriptive statistics and one sample t-tests were run on the split data to compare the clusters firstly with the data set as a whole, and secondly with the descriptions of the clusters previously found by Christmas et al. (2009). A separate two step cluster analysis was also run to identify the optimum number of clusters and the validity of the cluster analysis.

Findings from two step cluster analysis

Similar to the November 2014 findings, the validity analysis provided an optimal solution of two clusters and rated the model as poor, meaning that the 10 motivation questions lacked the ability to provide a robust set of clusters for this particular dataset.

The two clusters identified by this technique are described below and are highly similar to those found using the same analysis in November 2014.

Cluster 1 scored significantly lower than the overall mean average on all 10 of the motivation questions and consisted of 50.8% of the participants. The highest proportion of answers for each motivation question was 'quite unimportant' except for 'get away from everyday life' where the highest proportion of answers was 'quite important'.

Cluster 2 scored significantly higher than the mean on all 10 motivation questions and consisted of 49.2% of the participants. The highest proportion of answers for each question were either 'neither important or unimportant' or 'quite important' except for 'pitting self against other' where the highest proportion of the answers was 'unimportant'.

Other significant differences between the two clusters

- **Age:** Cluster 2 is significantly younger than cluster 1
- **Average annual mileage:** Cluster 2 has a significantly higher average annual mileage
- **Frequency of riding for pleasure:** Although no statistical differences were found between the frequency with which the two groups travel by motorcycle for work purposes, commuting, or traveling to college, cluster 2 reported riding significantly more for pleasure purposes
- **Riding tired:** Cluster 2 has a significantly higher average score for traveling tired
- **Would still wear a helmet after it has been dropped on hard surface:** Cluster 2 is significantly less likely to agree with this statement
- **Riders should be more aware of their blind spots:** Cluster 2 is significantly less likely to agree with this statement
- **Injured in an accident:** Cluster 2 is more likely to have been injured in an accident

Findings from K-means cluster analysis

The seven clusters returned by the K-means cluster analysis were of relatively similar sizes ranging from 11.7% to 16.8% of the sample. The clusters found were similar to the descriptions from the 2009 work; however some key differences were noted. For example, car aspirants from the Christmas et al. (2009) were described as being highly motivated by self-sufficiency, but this was not the case in the current data. This same group was also found to be significantly older than the average whereas Christmas et al. found them to be younger than the average.

When comparing the cluster allocations found from the May data with those from November, only 91 of the 1075 participants were allocated to the same group. Differences between the results may be due to BikeSafe targeting and recruiting different types of riders at different times of the year. The May data encompasses a whole year's worth of data so these effects should be largely controlled for in this analysis. It is therefore unsurprising that the clusters have not matched perfectly.

On the basis of this cluster analysis and validation techniques, the seven clusters defined with their characteristics below are suggested as those that should be taken forward into the BikeSafe analysis.

The seven clusters found are described below. The asterisks show results that are highly different from those found in the Christmas et al. paper and "°" shows results that are highly different from the November analysis. Results have been classed as being highly different if there has been a change in the direction of significance or if the result is key to define the cluster's nature.

1 Car rejecters (270, 14.3%)

Demographics

Significantly older than average

Motivations significantly lower than the average:

- Not relying on others*°
- Pit against others
- Feedback
- Get away from everyday life
- Belongingness and comradery
- Wind rush

- Power
- Get places quickly°
- Look good
- Heritage and tradition

Bikes and gear

- Mostly naked and super sport
- Significantly lower rates of wearing armour boots
- Significantly lower rates of wearing armour gloves

Accidents and risk

- Less likely to be injured in a collision
- Less likely to drive tired

As described by Christmas et al. (2009), this group in general is not motivated by motorbikes and riding but by avoiding the problems caused by cars such as parking and traffic. Similar motivation patterns were found in the present research with this group scoring significantly lower on all 10 of the motivation questions than the mean average of the total sample. The only difference was with the statement “Not relying on others” where Christmas et al. found that Car Rejecters scored significantly higher than the average whereas the present research found them to score significantly lower than the average. In the Christmas et al. research this group was found to be of average age with a higher proportion of women than any other group. In the present research this group was significantly older than the average with an average gender ratio.

2 Car aspirants (312, 16.5%)

Demographics

Significantly older than the average*

Motivations significantly lower than the average:

- Pit against others
- Feedback and noise
- Get away from everyday life
- Belongingness and comradery
- Wind rush
- Power
- Look good
- Heritage and tradition
- Get places quickly

Bikes and gear

- Significantly lower engine size
- Mostly naked bikes
- Significantly lower rates of wearing a leather jacket than average
- Significantly lower rates of wearing leather trousers than average
- Significantly higher rates of wearing textile jacket
- Significantly higher rates of wearing high visibility clothing

From the work by Christmas et al. (2009) this group was described as young people aiming to have a car in the future but are happy with the independence that two wheels offers. The previous work found that this group was significantly higher than average on ‘not relying on others’ and Christmas et al. defined this group by their drive for self-sufficiency. This was not the case in the present analysis. This group was also found to be the youngest

by Christmas et al. but the current analysis found that they were significantly older than the average. This possibly suggests that this group has a different make-up to that found by Christmas et al. However, this group matches the car aspirants from the previous work in terms of bike types and gear.

3 Performance hobbyists (221, 11.7%)

Demographics

- Significantly younger than average
- Significantly more male than average

Motivations significantly higher than the average:

- Not relying on others°
- Pit against others*
- Feedback and noise
- Get away from everyday life°
- Wind rush°
- Power
- Get places quickly°

Motivations significantly lower than the average:

- Belongingness and comradery
- Heritage and tradition

Bikes and gear

- Mostly naked and super sport bikes

Accidents and risk

- More likely to drive tired than average

Christmas et al. (2009) described Performance Hobbyists as solitary, summer risers, who are motivated by the experience and sensations of riding which was also found in the present findings. However, Christmas et al. found this group to be significantly less motivated by the statement 'pitting self against others' than average but the current analysis found that they are significantly more motivated by this statement than average. The age of this group is younger than the group in the 2009 work which may be linked to the change in the level of competitiveness observed in the findings.

4 Look at me enthusiasts (237, 12.5%)

Demographics

- Significantly younger than average

Motivations significantly higher than the average:

- Not relying on others
- Pit against others°
- Feedback
- Get away from everyday life
- Belongingness and comradery
- Wind rush
- Power
- Get places quickly
- Look good
- Heritage and tradition

Bikes and gear

- Significantly higher on number of bikes owned

- Significantly less likely to have taken a break
- Significantly lower engine size
- Mostly naked and super sport
- Sig higher annual millage
- Significantly higher rates of wearing a leather jacket
- Significantly higher of wearing armour boots
- Significantly higher rates of wearing high visibility clothing

Accidents and risk

- More likely to drive tired

This segment remains very similar to that found in Christmas et al. (2009) which they described as being young and full of enthusiasm. They see riding as a way to express themselves and look cool. For all other clusters, no motivation statement had the majority of answers as 'very important' but for this group the majority of answers were 'very important' for all of the 10 motivation questions.

5 Riding hobbyists (279, 14.7%)

Demographics

Significantly older than average

Motivations significantly higher than the average:

- Get away from everyday life
- Belongingness and comradery°
- Wind rush°
- Get places quicker*°
- Heritage and tradition °

Motivations significantly lower than the average:

- Not relying on others
- Pit against others
- Power
- Look good

Bikes and gear

- Significantly more likely to have taken a break
- Significantly higher engine size
- Mostly naked and super sport
- Significantly lower annual millage
- Significantly higher rates of wearing leather boots
- Significantly higher rates of wearing an armour jacket

Accidents and risk

- Less likely to be injured in a collision

Christmas et al. (2009) described this group as older, fair weather riders who enjoy the social side of riding. This remains the case in the present findings. The only difference found between the original and present research is in the average score for being motivated by the statement 'Get places quicker'.

6 Performance disciples (318, 16.8%)

Motivations significantly higher than the average:

- Pit against others°
- Belongingness and comradery°

- Power
- Get places quickly°
- Look good*
- Heritage and tradition°

Bikes and gear

- Mostly naked and super sport

As described by Christmas et al. (2009), this group consists of devoted all year riders who are focused on high performance riding. They are mainly motivated by the power of bikes compared with cars and belonging to a riding community. These results are replicated in the present findings with the exception of present group also being highly motivated by looking good.

7 Riding disciples (255, 13.4%)

Motivations significantly higher than the average:

- Not relying on others
- Pit against others*
- Feedback
- Get away from everyday life
- Belongingness and comradery
- Wind rush
- Power**°
- Get places quickly°
- Look good**°
- Heritage and tradition

Bikes and gear

- Mostly naked bikes
- Significantly higher rates of wearing a leather jacket
- Significantly higher rates of wearing leather trousers
- Significantly lower rates of wearing armour trousers
- Significantly lower rates of wearing high visibility clothing

Accidents a risk

- More likely to drive tired

This group had the most differences to the group found by Christmas and colleagues who found the Riding Disciples to score highly on belongingness and sensation motivations and low on showing off. The three motivation statements with an asterisk were found to be scored significantly lower than average in the previous research resulting in the current cluster looking similar to the Look at me Enthusiasts but with less extreme enthusiasm. As previously mentioned, for the Look at me Enthusiasts cluster the majority of motivation statements had the highest proportion of answers as 'very important' whereas the riding disciples have the highest proportion of answers as 'quite important'.

Cluster names and percentages from November 2014

- 1 Car rejecters 13%
- 2 Non-competitive look at me enthusiasts 24%
- 3 Lone riding hobbyists 12.2%
- 4 Performance disciples 11.9%
- 5 Car aspirers 10.3%
- 6 Riding disciples 15.1%
- 7 Performance hobbyists 13%