Submission No 13

MOTORCYCLE SAFETY IN NSW

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Submission to the NSW Staysafe Committee from the National Motorists Association of Australia (NMAA) - Safer Motorcycle Riding

NATIONAL MOTORISTS ASSOCIATION AUSTRALIA .

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The National Motorists Association of Australia is a small group of people based in several states who are vitally interested in road safety particularly in positive measures to improve road safety. The NMAA membership comes from a range of backgrounds and are well educated, professional people of middle age upwards. They have a wide range of skills and all take pride in their roadcraft skills, enjoy their driving and have a wide experience in safe driving. The NMAA does not provide breakdown services, insurance or travel services and acts more like a “think tank” assessing information. It focusses on developing the principles of road safety that should be part of official standards.

We have motorcyclists among our number and as drivers we interact with motorcyclists at all times. We believe that whether we are motor cyclists or drivers we have a mutual responsibility for remaining safe on the roads.

In addition to the high exposure of driving on Australian roads we have significant exposure to Western European road systems. Motor cycles/scooters are more prevalent there than in Australia.

With this background and our experience we believe that we can make a valuable contribution.

a) Trends of motorcycle usage, injury and fatality in NSW

We do not have information on these matters, however, our observations are that there is an increasing usage of motorcycles and scooters for commuting purposes. We also believe that there is a return to motor cycling by middle aged males “reverting to their youth”.

NSW is not the only state experiencing escalating motorcycle crash statistics. This year Queensland is set to record its highest total for motorcycle fatalities in six years. See http://www.brisbanetimes.com.au/queensland/queensland-motorcycle-road-toll-climbing-20150812-gixuyr.html

It is believed that the training system for motorcycle riders that has been in place for some years in NSW has been beneficial in reducing the frequency of crashes by novice and inexperienced motorcyclists. However, many of those returning have lost skills and are riding much more powerful machines than they were used to sometimes with unfortunate consequences.

We note with great concern that people in many areas of NSW are exempt from the motorcycle training requirements. For example Batemans Bay is regarded as too distant from any RMS motorcycle training facility. Consequently, the local Eurobodalla Shire Council has funded motorcycle training in an endeavour to reduce the motorcycle crash statistics which are above the state average in that shire.

Recommendation 1

That motorcycle training be compulsory throughout NSW, without exception, to the standard provided by RMS motorcycle training facilities.

b) Crash and injury risk factors including rider (and driver) behaviour, conspicuity and vehicle instability

Unfortunately State and Territory governments in Australia do not analyse crash causation factors properly, and as a result little or no data exists for non-serious injury crashes and the data for more serious crashes is, at best, unreliable.

Crash cause analysis is the fundamental input into any safety programme. The aviation industry is so safe now because of the intense evaluation of the causes of crashes and the application of the lessons learned to policy frameworks. Proper crash cause analysis is a two stage process; the first is a reconstruction of what happened followed by analysis of why each contributory factor happened. It is axiomatic that this be undertaken by highly trained personnel with investigative skills and powers.

Although the facility for reconstruction of events exists it is the second stage which gives a clearer indication of causes and thus potential effective remedial action. For example a high speed single vehicle crash would usually have speed marked as a contributory factor, however, further analysis may determine that this was the outcome of other over-riding factors such as intoxication, suicide, an optical illusion, a road surface issue etc.

Police Services in the UK use a standardised system to report on the causes of crashes and these are reported to the central government and the compilation is published annually as a statutory document by HMSO. The UK Institute of Advanced Motorists (IAM) undertook an analysis of 5 years (2005 – 2009) of

statistics. The outcomes for motorcyclists are at sections 5.2 and 5.3 (Pages 27 – 30) attached. Note that this is the initial examination not the second stage evaluation.

Recommendation 2

That a unit within the NSW Police be trained to analyse crash causation along the lines of the UK system.

While rider and driver behaviour is important, one major difference between Australian behaviour and that in Western Europe is that there is a higher level of mutual tolerance. For example if a rider/driver is overtaking in the face of traffic even over separation lines the oncoming driver will, without fuss, move over and make room. This level of tolerance applies in city traffic as well as country roads. Unfortunately there is little such tolerance exhibited here; the attitude is often that "I have the right to do this and will not yield even if it results in a crash".

Recommendation 3

That the principle of tolerance over rights be taught *ab initio* and be emphasised in safety publications.

The practice of daylight running lights has advantages, however, now that many, and in the future all, vehicles use them motorcycles can easily blend into the general array of lights and become invisible.

In the UK in particular, motor cyclists often wear clothing with bands of reflective tape which is useful in their common winter conditions of darkness and inclement weather.

Wearing light clothing, instead of leathers, seems to be common in the urban environment with higher protection standards used in the faster non-urban environment.

It is our opinion that "looked but did not see" events are in the category if "inattention". Driver attentiveness is improved by a higher standard of training.

While wearing high visibility clothing is a positive action, it appears that crashes caused by "looked but did not see" events are more about the poor standards of observation by drivers. Good observation skills are not taught in driver training yet are more essential than visual acuity.

Recommendation 4

That observation skills be part of the driver/rider training curriculum and be emphasised in publicity.

Two wheeled vehicles are inherently unstable and this is compounded when there are variations in road surfaces. In marginal grip situations closing the throttle can result in dislodgement of the rider. Four wheel vehicles are not as badly affected.

c) Effectiveness of current action plan to enhance motorcycle safety including communications

No action plan can be effective unless it is properly communicated. This means that the message must be perceived as credible by the recipients and it must be delivered in a manner which relates to the recipients.

Most road safety communications seem to be aimed at self justification of the rule makers. They are patronising, and often lack credibility and are irrelevant to the recipient. The recipient is a person who is not complying with the perceived safety rules, however, if the message does not relate to the person's life experience it lacks credibility. If it is delivered by a self aggrandised autocratic figure then it will be rejected as patronising.

An example of a message that could work in persuading riders to wear protective clothing would be film clips of a racing motorcyclist coming off the machine, sliding along the road and getting up to walk away or even pick up the machine and ride off. A simple voice over "Leathers won't prevent you falling off but do let you walk away". This would relate to riders, is not patronising and gets the message across.

Recommendation 5

Communications should be designed for the message recipient not the message maker.

d) Strategies of other jurisdictions to improve motor cycle safety

We have no comment on official strategies in other jurisdictions beyond observing that in Western Mainland Europe where motorcycles are far more common there seems to be a "laissez faire" attitude on the road relying more on the self preservation instincts of the riders rather than enforcement procedures.

The general standard of driver training in Europe is much higher (Germany is the world's best) and there seems to be more reliance on a code of behaviour rather than a myriad of black letter regulation.

In France, and possibly in other mainland countries, motorised bicycles can be driven at 14 years of age. These have small engines and are limited to 40 km/h.

While it may seem strange to us it seems that young riders gain valuable skills and respect for traffic while still under parental control. Formal training is also required. When they graduate to larger vehicles they seem to have gained considerable skill and self preservation levels.

People used to Australian standards on the roads find the actions of motorcyclists in the European cities and, in particular, on mountain passes (motorcycle playgrounds!) somewhat frightening, however, there does not appear to be the carnage expected. Note that many riders are in their 50s and 60s.

Recommendation 6

That the Government examine the strategies used in Western Europe including the issue of young persons riding motorised bicycles to ascertain the systems and benefits of overseas practices.

e) Licencing and rider training

Some years ago there was a change to ab initio rider training necessitating new riders undergo professional training. It is understood that this has been highly successful in reducing crash rates in new riders.

As mentioned earlier there needs to be a sound approach to crash investigation in order to devise effective counter measures and develop training standards.

Pilots are trained in observation skills and pilot trainers could be consulted in improvements to training standards.

There is an aversion to improved driver/rider advanced training based on studies of advanced training graduates however these people are not typical of the population at large as they are high exposure high risk persons and there is more car/bike control than roadcraft in the curriculum. The advanced training regime that most resembles the normal cross section of people is the UK Hendon Police Driver Training School which reduced the crash rate of police drivers by two thirds when it was first established.

The motorised bicycles in France as described in section d) are “sans permis” ie. do not require a licence.

Recommendation 7

That further research be conducted into improved standards of training based on universal application.

f) Other matters

There are serious deficiencies in road design and maintenance. Frequently on urban roads there are manhole covers and service access points which are at a different level to the road surface. While this may be an irritant to a car driver these may be sufficient to dislodge a motorcyclist. Similarly adverse super elevation (colloquially adverse camber) may induce minor and recoverable loss of grip for a car but would cause total loss of control for a motorcycle rider. Grit, gravel or dirt on a road surface is dangerous. Potholes and broken surfaces are frequent, patches after roadworks are often uneven and with longitudinal joints which are mismatched. On more heavily trafficked roads there are ruts where car and truck wheels pass. This is fundamentally poor workmanship and construction/design inadequacy.

When authorities are tackled on these matters the response is that drivers/riders should adjust to the conditions - a self serving excuse.

Safety audits seemingly ignore these issues concentrating on the relatively trivial as that is what the standard demands.

There is no excuse for this. In southern Europe temperatures in summer are as high as the Eastern seaboard and although trucks are smaller they have fewer axles and thus the axle weight is higher.

There is a continual issue with roadside safe barriers. The RMS prefer the Brifen wire rope over Armco style barriers. The wire rope barriers are known colloquially as “cheese cutters” as in an impact with motorcyclists they are alleged to act like a wire cheese cutter slicing into the bodies of riders and passengers.

It is noted that these appear not to be used in Europe where median barriers are designed and built to prevent cross median excursions even by heavy vehicles. The use of this barrier needs to be reviewed for effectiveness and danger to those who are vulnerable to direct bodily contact.

Recommendation 8

The standards for road design be reviewed to ensure that adverse safety concerns are not built into the road at the construction phase.

Recommendation 9

The standards of road maintenance be improved to ensure that inspection covers/access points do not have a discontinuity with the surrounding road surface and that ruts, discontinuities at joints do not occur.

Recommendation 10

Authorities permitted to dig through the road surface be required to repair the road to the higher standards.

Recommendation 11

The standards used in road safety audits be reviewed to ensure that these matters are included.

Recommendation 12

That use of the Brifen type wire rope roadside barriers be reviewed especially from the viewpoints of effectiveness and impact on the bodies of motorcyclists.

Authorised by Gavin Goeldner
Vice President

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Attachment
Licenced to skill – contributory factors in road accidents
Great Britain 2005 – 2009 Institute of Advanced Motorists (UK)

Licensed to skill

contributory factors in road accidents

Great Britain 2005 - 2009

IAM
DRIVING ROAD SAFETY

Foreword

In recent years, most of the big leaps forward in road safety have come as a result of vehicle and road design. Looking forward there are very few new technological advances on the horizon to help maintain the downward trend in road casualties.

Five-star cars on five-star roads need five-star drivers. To make the final push towards minimising death, injury and emotional pain on our roads we must tackle the common denominator – human behaviour. Errors – unintentional or intentional, and lapses – momentary or through lack of experience – are behind the vast majority of crashes in the UK today. Our new report looks at hundreds of thousands of police crash reports to pick out the top ten crash contributory factors for a range of road, vehicle and driver types.

For many the results will come as no surprise although they do question the focus on speeding which has for so long underpinned many road safety campaigns. **For the IAM the key issue is what we do next with this information.** For too long technological fixes have been sought when improving the quality of our drivers and riders was clearly the key issue.

The IAM, with its track record of success in delivering advanced drivers and riders, is well placed to help improve the skills of British road users. 'Failure to look' is by far the most common factor recorded along with 'failed to judge another person's path or speed' and 'loss of control'. Advanced driving provides the best solution to these problems through its principles of anticipation, positioning and awareness of hazards. Taking an IAM test and adopting a more measured style of driving would also reduce factors such as 'careless, reckless or in a hurry' and 'travelling too fast for the conditions'.

However, we cannot tackle driver behaviour alone and we are calling for the government to undertake a fundamental review of driver training and link it firmly to continuous post-test learning with real incentives to reward the best drivers.

Alistair Cheyne OBE, IAM Chairman
Simon Best, Chief Executive

Licensed to skill: Contributory factors in accidents is published by the IAM.

IAM, IAM House, 510 Chiswick High Road, London W4 5RG

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Licensed to skill: contributory factors in road accidents: Great Britain 2005 - 2009

Executive summary

Since 2005, official accident records have included additional information on contributory factors which are designed to provide insights into why and how road crashes happen and to help develop measures aimed at preventing them. A total of 77 categories of contributory factor are available. These provide information on the factors which the police officer attending the scene considers may have contributed to the cause of the accident. They are intended to identify the key actions and failures which led directly to the impact. This report looks at over 700,000 items of official crash data to pick out common themes.

- Driver and rider error or reaction' factors are recorded more frequently than other types – 68% of all crashes
- The next most common are 'injudicious action' factors – 26% of all crashes
- This is closely followed by 'behaviour or inexperience' factors – 25% of all crashes

Many of the issues which receive the most media coverage are not actually among the most common contributory factors. Speeding, drink driving, mobile phone use, tailgating, road rage and bad weather are all important but are not as frequently reported as driver errors;

- 'Exceeding the speed limit' (13.9% of fatal, 7.2% of serious and less for slight)
- 'impaired by alcohol' (10% of fatal and 7% of serious accidents, less slight accidents)
- 'aggressive driving' (8% of fatal accidents, less serious and slight accidents)
- 'slippery road - due to weather' (11% of slight and 8% of serious accidents but less frequently reported in fatal accidents)
- 'sudden braking' and 'following too close' (8% of slight accidents each, but less frequently reported in fatal and serious accidents)
- 'Driver using mobile phone' (0.8% of fatal crashes, but only 0.2% of all injury crashes)
- Vehicle defects are recorded in very few cases (2%).

The report shows the top ten factors for different crash severities, driver age, road types and other issues such as weather and time of crash. These 'top tens' show key variations which the IAM believe can be useful in the design of future interventions. Accidents involving younger and older drivers show different contributory factors and these can be used to tailor training and assessment solutions. For example, 'Learner or inexperienced' is recorded as a contributory factor more frequently on rural roads, minor roads and 60 mph roads than elsewhere confirming the IAM's view that the driving test does little to prepare new drivers for the highest risk activities.

- Younger and older drivers and riders (under 30 and over 70) have 'error or reaction' factors recorded in a larger proportion of cases than among those between 30 and 70
- Older drivers have 'failed to look properly' recorded more frequently than younger drivers and factors associated with ageing and difficulty coping with the traffic environment, which are less frequently recorded for younger drivers.
- Car drivers under 25 have 'exceeding the speed limit' 'travelling too fast for the conditions' and 'learner/ inexperienced' recorded more frequently than drivers over 25
- 'Exceeding the speed limit' features in the top ten factors for motorcyclists in the under 30 and 30 – 59 age groups
- Alcohol features in the top ten factors for drivers aged 25 – 69 and ranks eleventh for drivers under 25, but is less frequently recorded for motorcyclists
- Comparisons between men and women car drivers show many similarities in the contributory factors reported, but 'careless, reckless or in a hurry', 'travelling too fast for the conditions' and 'impaired by alcohol' are recorded more frequently for men than for women, while 'learner or inexperienced driver' is recorded more frequently for women
- In fatal accidents on motorways, alcohol, fatigue and vehicle defects (mainly tyres and brakes) are more frequently reported than in other accidents suggesting the continued need for motorway campaigns and enforcement to focus on these areas.

Using contributory factors to improve road safety

This report provides a subjective indication of the causes of accidents, not a definitive view. Factors which are more obvious to the police officer attending will tend to be recorded more than those which are less obvious or require more in-depth reconstruction. However, the results can still be used to highlight areas for further investigation or to suggest what the priority areas for road safety should be.

It is clear that driver and rider errors, particularly 'failure to look properly' and 'failure to judge the path or speed of other road users correctly' remain significant contributory factors in road accidents. Factors such as 'careless, reckless or in a hurry', 'loss of control' and 'travelling too fast for the conditions' together make up another significant group which could be addressed by a more measured style of driving, taking greater account of the traffic and road conditions prevailing. These human factors are attributed to drivers of all ages, although some factors are more frequently assigned to young drivers and others to older drivers, which points to the value of post-test driver training for improving the quality and safety of drivers.

Some factors are reported in relatively few accidents in total, but are more prominent in specific situations. Analysing these specific groups of accidents can provide insights into their causes which may help to develop measures for reducing the number of injuries.

The IAM believe that this report delivers important insights into what is actually happening on our roads. We should be ensuring that the police are encouraged to view the completion of this information as a high priority and that quality control measures are in place to ensure researchers and policy makers can continue to rely on this rich source of road safety data.

Glossary and definitions

Definitions of accidents and casualties

Accident	Involves personal injury occurring on the public highway (including footways) involving at least one road vehicle or a vehicle in collision with a pedestrian and which becomes known to the police within 30 days.
Fatal injury/ casualty	Injury causes death within 30 days of the accident
Serious injury/ casualty	Injury does not cause death within 30 days of the accident and either results in the casualty being detained in hospital as an in-patient, or any of the following injuries: fractures, concussion, internal injuries, crushings, severe cuts and lacerations, severe general shock requiring treatment, or any injury which causes death more than 30 days after the accident
Slight injury/ casualty	Injury of a minor character such as a sprain (including whiplash neck injury), bruise or cut which are not judged to be severe, or slight shock requiring roadside attention. Injuries not requiring medical treatment are included
Fatal accident	Accident involving at least one fatal casualty
Serious accident	Accident in which no one is fatally injured, but at least one casualty received serious injuries
Slight accident	Accident in which at least one casualty receives slight injuries but no fatal or serious injuries

Other definitions

Car	Taxis and private hire cars are included with private cars
Motorcycle	Includes moped
Rural roads	Roads which are either outside towns, or in towns with less than 10,000 population.
Season	Spring: March – May, Summer: June – August, Autumn, September – November, Winter: December - February

1 Introduction

1.1 Previous work

The IAM Policy and Research Division has funded a series of projects over the past few years which have looked in detail at the national accident data on specific issues. A unique aspect of these studies was that they combined accident data for several years. The number of accidents included in the combined data was large enough for more complex and multi-dimensional breakdowns of the data to be carried out than are usually possible.

Since 2005, the accident records have included additional information on contributory factors which is designed to provide insights into why and how road accidents happen, to assist in investigating measures aimed at preventing accidents. A total of 77 categories of contributory factor are available. These provide information on the factors which the police officer attending the accident considers may have contributed to the cause of the accident. They are intended to identify the key actions and failures which led directly to the impact.

This report presents the results from a small project which has carried out some preliminary analysis of the contributory factors data for the five years that are currently available: 2005 to 2009.

1.2 Project objectives

The main objective of the project is to analyse and report on contributory factors data for accidents and vehicles to identify the main contributory factors involved for:

- drivers and riders in different age groups, men and women
- accidents on different types of road
- accidents at different times
- accident severity.

The secondary objectives are:

- to identify the role of factors associated with driver error in contributing to road accidents, with a view to focusing on ways to improve the quality of driving
- to use this initial analysis to gain an understanding of the potential for the data to be used to support further investigations on specific topics in future, complementing the IAM's earlier projects based on analysis of the national road accident data.

1.3 This report

This report presents the results of the initial analysis, with a brief commentary. The focus at this stage is on the eight main groups of factors[1] and the 'top ten' individual factors associated with different groups of drivers or accident circumstances (where and when

[1] Road environment; Vehicle defects; Injudicious action; Driver/ Rider error; Impairment or distraction; Behaviour or inexperience; Vision affected; Pedestrian; Special codes

accidents happen). Before that, all of the contributory factors are presented, comparing fatal, serious and slight accidents, to illustrate the full range of information available and the proportion of accidents in which each of the 77 factors is reported.

Over the five years (2005-2009) covered by this analysis, there were almost 700,000 accidents which were attended by the police and for which contributory factors were recorded. These are the accidents which are analysed in Sections 2, 3 and 4. They represent about three-quarters of all accidents reported to the police and recorded in the accident database during this five year period.

Section 5 presents the contributory factors recorded for cars and motorcycles in accidents which were reported to the police during this five year period and shows how these factors vary with the age of drivers and riders, and the gender of car drivers.

The results are summarised in Section 6, along with conclusions on the options for further analysis of the contributory factors data.

1.4 Limitations of the analysis

The contributory factors can be used to provide more insights into the causes of the accident than can be gleaned from the facts about the accident circumstances in the remainder of the accident record. However it is important to bear in mind that there are certain limitations which mean that the contributory factors recorded can only be taken as an indication of the cause of the accidents.

The factors tend to be subjective, reflecting the opinion of the police officer reporting on the accident. They are not necessarily based on a detailed investigation of the accident. Some factors are more 'obvious' than others at the time when the police officer attends the scene. Because the information recorded is admissible as evidence in court, any factors that are recorded need to be supported by clear evidence.

Some research has been done comparing the factors recorded in specific accidents in the national accident database with those recorded in an in-depth study (Richards et al 2010). This found that in general fewer factors were recorded per accident in the national data than in the in-depth study. The types of factor which were less likely to be recorded in the national data than in the in-depth study were those which appear to allocate blame for an accident (such as those in the 'injudicious action' group, which includes 'exceeding the speed limit') and one of the factors in the 'behaviour' group - 'careless, reckless or in a hurry'.

1.5 Contributory Factor Data

The reporting form used by the police at the scene of an accident is designed for recording up to six of the factors which are considered to have contributed to the accident occurring. The 77 factors available for recording are grouped into nine different types.

Factors are assigned to individual participants, and multiple factors can be recorded for individuals. Thus more than one factor can be attributed to accidents, individuals and their vehicles. The percentages presented in this report are the percentage of accidents or vehicles having a specific contributory factor attributed to them, and because more than one factor can be attributed, they do not total 100.

Details of how each factor is defined can be found in the instructions for completing road accident reports (known as Stats20 - see Department for Transport, 2004).

2 Contributory Factors and Accident Severity

A fatal accident is one in which at least one person is killed, a serious accident involves at least one serious injury but no fatalities, and a slight accident involves at least one casualty with minor injuries but no serious injuries or fatalities. (See the Glossary on page iv for definitions.)

Table 1 (which is spread over two pages) shows the proportion of fatal, serious and slight accidents with each of the 77 contributory factors attributed to them, and the proportion with each of the nine types of factor (shown in bold above the group of factors which they describe). Both the groups of factors and the individual factors within these groups are listed in the order of frequency with which they are reported. The key points are:

- At all levels of accident severity, the 'driver/ rider error or reaction' factors are recorded more frequently than other types – 68% of all accidents
- The next most common are 'injudicious action' factors – 26% of all accidents, but a larger proportion of fatal (31%) than serious or slight (26%)
- This is closely followed by 'behaviour or inexperience' factors – 25% of all accidents and again a larger proportion of fatal (28%) than serious or slight (24%)
- Other types of factor which vary with accident severity are:
    - 'road environment' (more often recorded in slight accidents than more serious incidents)
    - 'impairment/ distraction' (more often in fatal accidents than serious or slight accidents) and
    - pedestrian behaviour (more often recorded in fatal accidents and serious accidents than slight accidents).
- Vehicle defects are recorded in very few cases (2%).

Table 1 Contributory factors and accident severity

Contributory factor reported in accident	Accident severity			All accidents
	Fatal	Serious	Slight	
Driver/ Rider Error or Reaction	**65.3%**	**61.8%**	**68.6%**	**67.5%**
Failed to look properly	20.5%	29.3%	36.3%	35.0%
Failed to judge other person's path or speed	11.6%	14.0%	20.0%	18.9%
Loss of control	34.0%	19.7%	13.4%	14.7%
Poor turn or manoeuvre	12.0%	13.8%	14.1%	14.1%
Sudden braking	3.0%	4.5%	7.7%	7.2%
Swerved	6.2%	4.2%	3.7%	3.8%
Junction overshoot	1.7%	1.9%	2.4%	2.3%
Failed to signal or misleading signal	0.6%	1.3%	2.0%	1.9%
Junction restart (moving off at junction)	0.9%	1.1%	1.8%	1.7%
Passing too close to cyclist, horse rider or pedestrian	1.1%	1.4%	1.4%	1.4%
Injudicious Action	**31.4%**	**25.0%**	**26.1%**	**26.0%**
Travelling too fast for conditions	15.9%	11.3%	9.9%	10.2%
Following too close	1.3%	2.8%	7.5%	6.7%
Exceeding speed limit	13.9%	7.2%	4.6%	5.2%
Disobeyed 'Give Way' or 'Stop' sign or markings	2.1%	2.8%	3.5%	3.4%
Disobeyed automatic traffic signal	1.0%	1.4%	1.8%	1.8%
Cyclist entering road from pavement	0.5%	1.0%	0.9%	0.9%
Illegal turn or direction of travel	0.7%	0.8%	0.7%	0.8%
Disobeyed pedestrian crossing facility	0.4%	0.7%	0.4%	0.4%
Vehicle travelling along pavement	0.4%	0.3%	0.3%	0.3%
Disobeyed double white lines	0.9%	0.5%	0.2%	0.2%
Behaviour or Inexperience	**28.0%**	**25.8%**	**24.4%**	**24.7%**
Careless, reckless or in a hurry	17.2%	16.7%	16.1%	16.2%
Learner or inexperienced driver/rider	5.3%	5.5%	5.2%	5.3%
Aggressive driving	8.3%	5.1%	3.6%	3.9%
Nervous, uncertain or panic	1.1%	1.3%	1.8%	1.7%
Unfamiliar with model of vehicle	1.4%	1.1%	0.8%	0.8%
Inexperience of driving on the left	0.4%	0.4%	0.5%	0.5%
Driving too slow for conditions or slow vehicle (e.g. tractor)	0.1%	0.1%	0.1%	0.1%
Road Environment	**10.9%**	**13.3%**	**15.6%**	**15.1%**
Slippery road (due to weather)	5.9%	7.9%	10.6%	10.1%
Road layout (e.g. bend, hill, narrow carriageway)	3.2%	2.8%	2.7%	2.7%
Deposit on road (e.g. oil, mud, chippings)	0.8%	1.7%	1.5%	1.5%
Animal or object in carriageway	0.8%	1.0%	1.2%	1.2%
Poor or defective road surface	0.7%	0.8%	0.6%	0.5%
Inadequate or masked signs or road markings	0.4%	0.4%	0.5%	0.3%
Temporary road layout (e.g. contraflow)	0.2%	0.2%	0.3%	0.2%
Defective traffic signals	0.0%	0.1%	0.2%	0.1%
Traffic calming (e.g. speed cushions, road humps, chicanes)	0.1%	0.2%	0.1%	0.1%

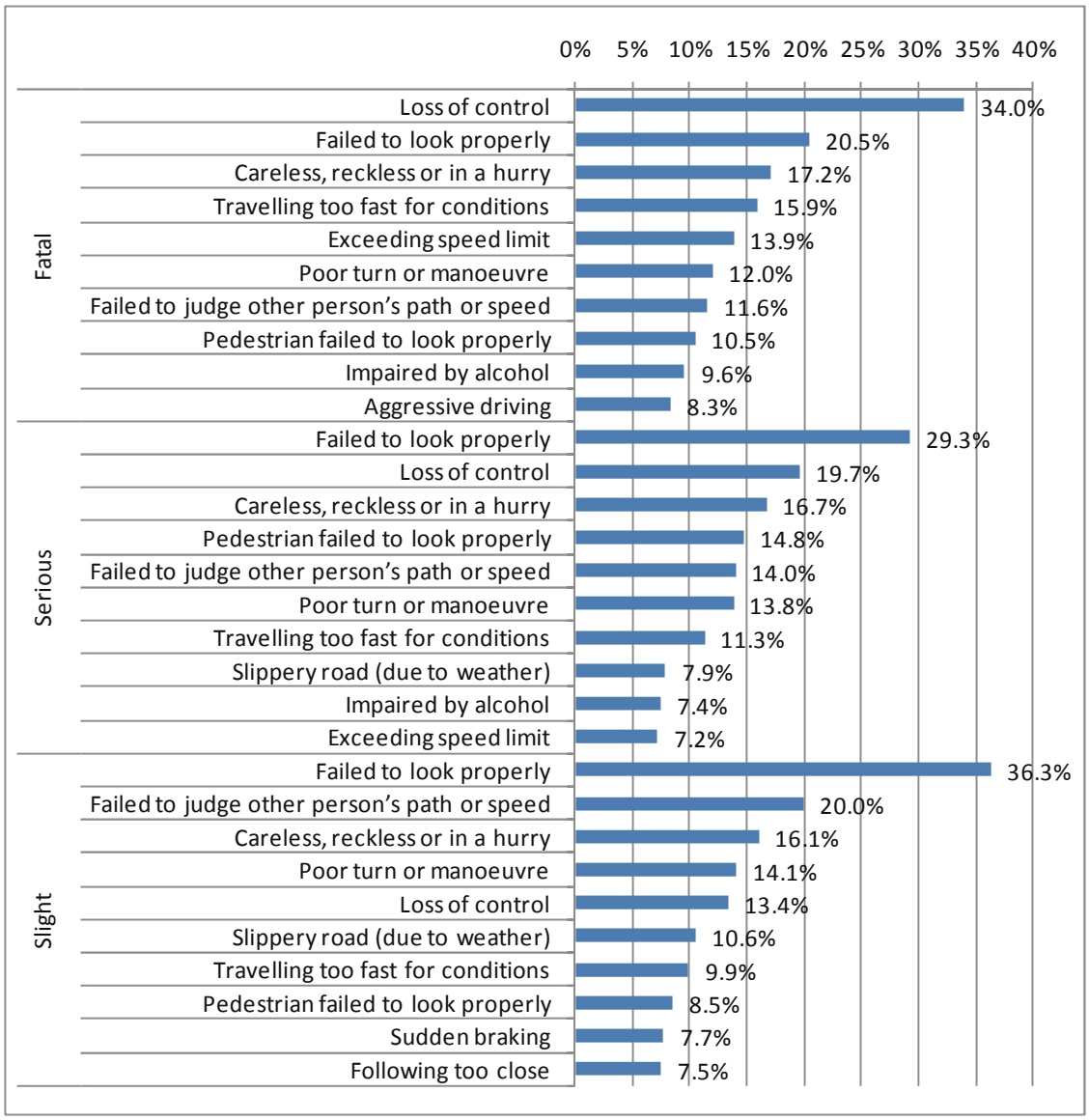
Contributory factor reported in accident	Accident severity			All accidents
	Fatal	Serious	Slight	
Pedestrian only (casualty or uninjured)	**18.2%**	**20.4%**	**11.5%**	**13.0%**
Pedestrian failed to look properly	10.5%	14.8%	8.5%	9.5%
Pedestrian careless, reckless or in a hurry	3.4%	6.3%	3.6%	4.0%
Pedestrian crossing road masked by stationary or parked vehicle	1.9%	4.4%	2.4%	2.7%
Pedestrian failed to judge vehicle's path or speed	5.2%	4.5%	2.4%	2.8%
Pedestrian impaired by alcohol	4.1%	3.5%	1.5%	1.9%
Dangerous action in carriageway (e.g. playing)	2.2%	1.9%	0.9%	1.1%
Pedestrian wrong use of pedestrian crossing facility	1.2%	1.4%	0.7%	0.8%
Pedestrian wearing dark clothing at night	3.3%	1.3%	0.5%	0.7%
Pedestrian disability or illness, mental or physical	1.9%	0.8%	0.3%	0.4%
Pedestrian impaired by drugs (illicit or medicinal)	0.4%	0.3%	0.1%	0.2%
Impairment or Distraction	**19.6%**	**14.2%**	**11.1%**	**11.7%**
Impaired by alcohol	9.6%	7.4%	4.7%	5.2%
Distraction in vehicle	2.6%	1.7%	2.1%	2.1%
Fatigue	3.1%	1.8%	1.3%	1.4%
Distraction outside vehicle	1.0%	1.0%	1.5%	1.4%
Illness or disability, mental or physical	3.6%	1.8%	1.2%	1.3%
Impaired by drugs (illicit or medicinal)	2.2%	0.9%	0.4%	0.5%
Not displaying lights at night or in poor visibility	0.4%	0.4%	0.3%	0.3%
Cyclist wearing dark clothing at night	0.4%	0.4%	0.3%	0.3%
Driver using mobile phone	0.8%	0.3%	0.2%	0.2%
Uncorrected, defective eyesight	0.4%	0.2%	0.1%	0.2%
Vision Affected by:	**7.5%**	**9.2%**	**10.5%**	**10.3%**
Stationary or parked vehicle(s)	1.1%	2.9%	3.2%	3.1%
Dazzling sun	1.5%	1.8%	2.2%	2.2%
Rain, sleet, snow, or fog	1.5%	1.5%	1.9%	1.9%
Road layout (e.g. bend, winding road, hill crest)	1.7%	1.5%	1.5%	1.5%
Vehicle blind spot	1.0%	1.0%	1.3%	1.2%
Vegetation	0.4%	0.4%	0.4%	0.4%
Dazzling headlights	0.4%	0.3%	0.3%	0.3%
Buildings, road signs, street furniture	0.2%	0.2%	0.2%	0.2%
Spray from other vehicles	0.1%	0.2%	0.2%	0.2%
Visor or windscreen dirty or scratched	0.2%	0.1%	0.1%	0.1%
Special codes	**6.1%**	**5.2%**	**4.5%**	**4.6%**
Other	4.4%	3.3%	2.7%	2.8%
Stolen vehicle	1.1%	1.0%	0.7%	0.8%
Emergency vehicle on a call	0.3%	0.4%	0.6%	0.5%
Vehicle in course of crime	0.4%	0.4%	0.4%	0.4%
Vehicle door opened or closed negligently	0.1%	0.4%	0.4%	0.4%
Vehicle Defects	**2.8%**	**2.2%**	**1.9%**	**1.9%**
Tyres illegal, defective or under inflated	1.5%	0.9%	0.7%	0.7%
Defective brakes	0.7%	0.6%	0.6%	0.6%
Overloaded or poorly loaded vehicle or trailer	0.4%	0.3%	0.2%	0.2%
Defective lights or indicators	0.2%	0.2%	0.2%	0.2%
Defective steering or suspension	0.2%	0.2%	0.2%	0.2%
Defective or missing mirrors	0.0%	0.0%	0.0%	0.0%
Total number of accidents	**11,968**	**104,760**	**576,959**	**693,687**

Figure 1 shows the ten most frequently reported of the individual factors in fatal, serious and slight accidents. The key points are:

- Seven factors are in the top ten for fatal, serious and slight accidents, but their ranking varies with severity of the accident. These are 'loss of control', 'failed to look properly', 'careless, reckless or in a hurry', 'travelling too fast for the conditions', 'poor turn or manoeuvre' 'failed to judge another person's path or speed' and 'pedestrian failed to look properly'
- 'Loss of control' is the most frequently recorded single factor in fatal accidents (34%); it ranks second in serious accidents (20%) and fifth in slight accidents (13%)
- 'Failure to look properly' is the most frequently recorded factor in both serious (29%) and slight (36%) accidents, and is the second most frequently recorded in fatal accidents (21%)
- A driver or rider who is 'careless, reckless or in a hurry' is the third most common factor in fatal, serious and slight accidents, accounting for 16-17% in each case
- 'Travelling too fast for the conditions' and 'exceeding speed limit' are the fourth and fifth most frequently recorded in fatal accidents (16% and 14%) but rank lower in serious (11% and 7%) and slight accidents.[2]
- 'Failed to judge another person's path or speed' is the second most frequently recorded in slight accidents (20%), but ranks seven in fatal accidents and six in serious accidents
- Factors which are not in the top ten in fatal, serious and slight accidents are:
    - 'impaired by alcohol (10% of fatal and 7% of serious accidents, less slight accidents)
    - 'aggressive driving' (8% of fatal accidents, less serious and slight accidents)
    - 'slippery road - due to weather' (11% of slight and 8% of serious accidents but less frequently reported in fatal accidents)
    - 'sudden braking' and 'following too close' (8% of slight accidents each, but less frequently reported in fatal and serious accidents).

[2] Note that 'exceeding speed limit' takes precedence and is intended to be recorded in cases where vehicles were also travelling too fast for the conditions. 'Travelling too fast for the conditions' is intended to be recorded in cases where the driver or rider was travelling within the speed limit, but too fast for the conditions. However some drivers have both factors recorded.

Figure 1 Ten most frequently reported factors in fatal, serious and slight accidents



3 Accidents on different types of road

3.1 Road class

Table 2 shows the types of contributory factor reported for accidents on different classes of road.

- 'Driver/ rider error or reaction' is reported in a larger proportion of accidents on motorways and A roads than on minor roads, particularly C and unclassified roads
- 'Behaviour or inexperience' is less frequently reported in motorway accidents (where learner drivers are not legally able to drive) than on other types of road
- Factors associated with pedestrians are, as expected, rarely reported on motorways and are reported for higher proportions of accidents on minor roads than on major roads
- 'Impairment or distraction' and 'vehicle defects' are reported for a larger proportion of motorway accidents than for accidents on other types of road.

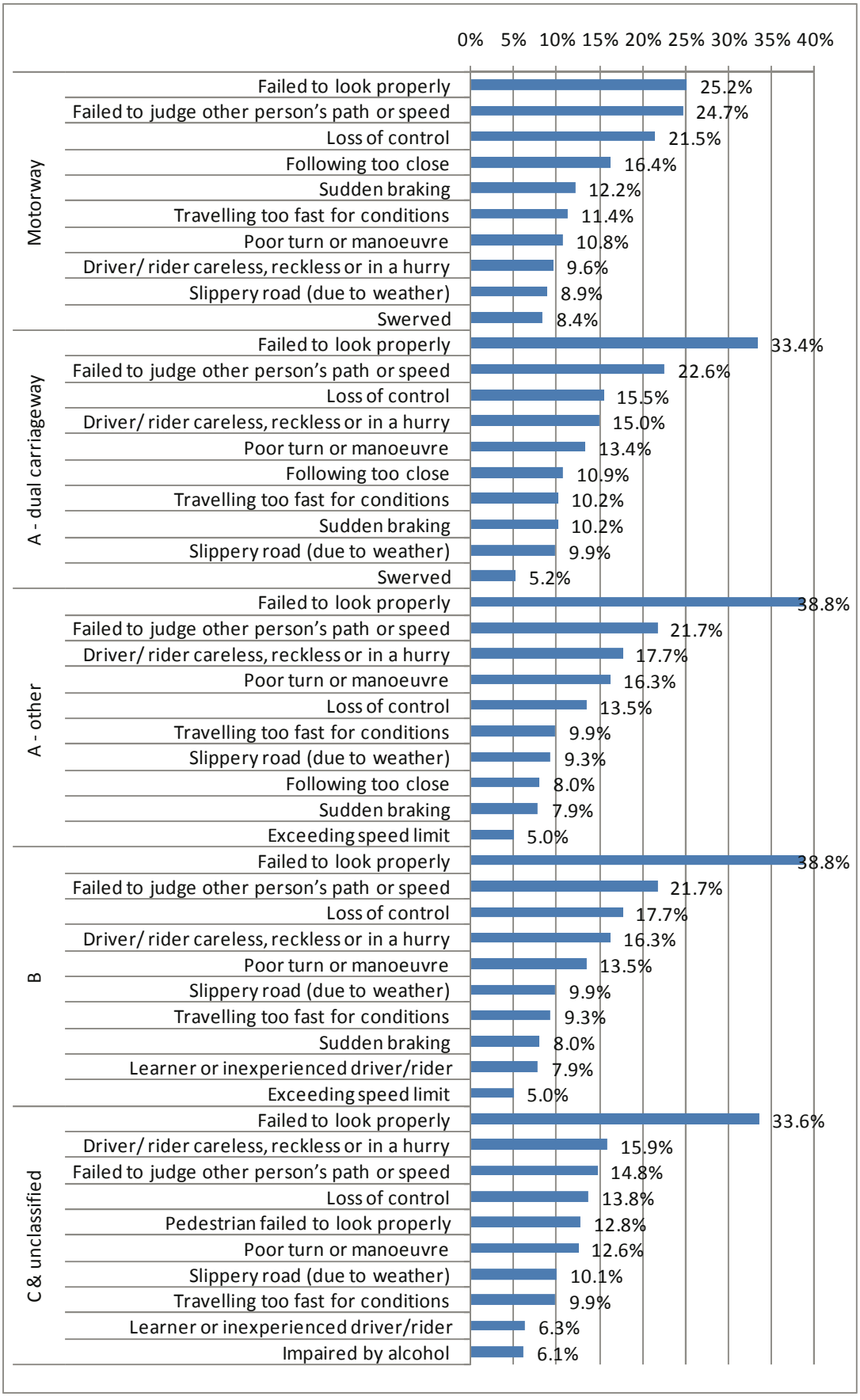
Table 2 Types of contributory factor reported for accidents on different types of road

Contributory factor type	Road Class and Type					All roads
	Motorway	A - dual carriageway	A - other	B	C & unclassified	
Driver/ Rider Error or Reaction	71.3%	69.7%	71.2%	68.0%	62.7%	67.5%
Injudicious Action	26.6%	29.4%	26.6%	26.6%	24.2%	26.0%
Behaviour or Inexperience	16.2%	23.0%	25.4%	25.4%	25.4%	24.7%
Road Environment	12.6%	13.8%	13.6%	19.2%	15.9%	15.1%
Pedestrian only (casualty or uninjured)	1.3%	8.7%	11.6%	11.4%	17.7%	13.0%
Impairment or Distraction	14.7%	11.6%	11.2%	12.2%	11.7%	11.7%
Vision Affected	9.7%	7.6%	9.0%	10.7%	12.2%	10.3%
Special codes	5.1%	4.7%	4.3%	4.0%	5.1%	4.6%
Vehicle Defects	4.1%	2.4%	1.7%	1.7%	1.8%	1.9%
Number of accidents	33,971	71,334	247,090	89,237	252,055	693,687

Figure 2 shows that:

- 'Failed to look properly' is the most frequently reported factor on all types of road but is less frequently reported on motorways (25%) than on other roads (33% - 39%)
- 'Failure to judge another person's path or speed' ranks second on all types of road except for minor roads
- 'Following too close' is reported more frequently on motorways (16%) and dual carriageways (11%) than other roads (less than 5% on minor roads)
- Seven factors appear in the top ten on all classes of road: failed to look properly', 'failure to judge another person's path or speed', loss of control, 'travelling too fast for the conditions', 'poor turn or manoeuvre', 'driver/ rider careless, reckless or in a hurry' and 'slippery road' (due to weather)
- The factors which appear in the top ten on some, *but not all*, classes of road are:
    - 'exceeding the speed limit' (single carriageway A roads and B roads only)
    - 'learner or inexperienced driver/ rider' (B, C and unclassified roads only)
    - 'pedestrian failed to look properly' (C and unclassified roads only)
    - 'impaired by alcohol' (C and unclassified roads only).
- These factors which are in the top ten for minor roads only may reflect the way minor roads are used (pedestrians and learner drivers may be found more on such roads; drink drivers tend to report that they drive on local quiet roads after drinking alcohol (Hopkin et al 2010, Sykes et al 2010).

Figure 2 Ten most frequently reported factors in accidents on different classes of road



3.2 Rural and urban roads

Table 3 shows two main differences in the types of factor reported between accidents in urban and rural roads:

- road environment factors are reported in a larger proportion of accidents in rural areas than urban areas
- pedestrian factors are, as expected, reported in a larger proportion of accidents in urban areas.

Table 3 Types of contributory factor reported for accidents in urban and rural areas

Contributory factor type	Area	
	Urban	Rural
Driver/ Rider Error or Reaction	66.2%	69.6%
Injudicious Action	25.1%	27.5%
Behaviour or Inexperience	24.8%	24.5%
Road Environment	9.1%	24.4%
Pedestrian only (casualty or uninjured)	18.7%	4.2%
Impairment or Distraction	10.5%	13.6%
Vision Affected	10.0%	10.6%
Special codes	5.2%	3.8%
Vehicle Defects	1.5%	2.6%
Number of accidents	417,887	275,710

Figure 3 shows that eight factors appear in the top ten for both urban and rural roads.

- 'Failed to look properly' is the most frequently recorded factor in both, but is recorded in 41% of accidents in urban areas and 26% in rural areas.
- 'Loss of control' and 'slippery road – due to weather' are recorded more frequently on rural roads than urban.
- Factors which are in the top ten for urban but not rural roads are:
    - 'poor turn or manoeuvre', 'pedestrian failed to look properly' and 'pedestrian careless, reckless or in a hurry'
- Factors in the top ten for rural but not urban roads are:
    - 'sudden braking' and 'learner or inexperienced driver/ rider'.

Figure 3 Ten most frequently reported factors in accidents in urban and rural areas

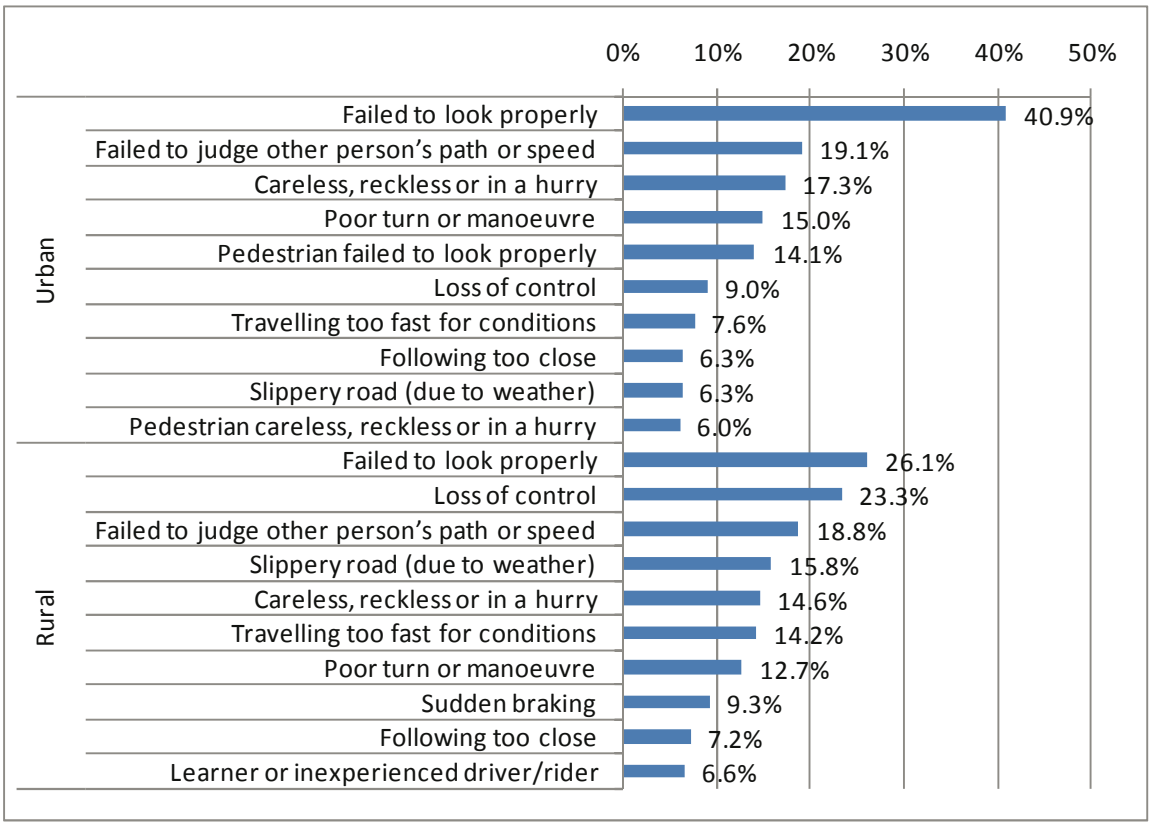


Table 4 shows that comparing types of road between urban and rural areas:

- 'Injudicious action' is reported in a larger proportion of accidents on motorways and dual carriageways in urban areas than on other types of road (in urban or rural areas)
- 'Road environment' factors are reported in a larger proportion of accidents on minor roads in rural areas than in urban areas or on major roads
- 'Impairment or distraction' factors are reported in a larger proportion of accidents on each type of road in rural areas than on equivalent roads in urban areas
- 'Pedestrian' factors are reported in a larger proportion of accidents on minor urban roads than rural roads or major roads.

Table 4 Types of contributory factor reported: road class in urban and rural areas

Contributory factor type and area	Road class and type			
	Motorway	A - dual carriageway	A - other	B, C or unclassified
Urban area				
Driver/ Rider Error or Reaction	73.6%	67.7%	69.7%	63.6%
Injudicious Action	31.7%	31.7%	25.7%	23.4%
Behaviour or Inexperience	17.9%	24.2%	25.7%	24.5%
Road Environment	13.7%	10.1%	7.5%	9.7%
Pedestrian only (casualty or uninjured)	1.3%	13.4%	17.3%	20.9%
Impairment or Distraction	11.5%	9.6%	9.5%	11.2%
Vision Affected	9.0%	7.3%	8.5%	11.5%
Special codes	4.6%	4.8%	5.0%	5.4%
Vehicle Defects	2.7%	1.5%	1.2%	1.6%
Number of accidents	4,444	40,527	142,967	229,949
Rural area				
Driver/ Rider Error or Reaction	70.9%	72.3%	73.3%	65.0%
Injudicious Action	25.9%	26.5%	27.9%	27.7%
Behaviour or Inexperience	16.0%	21.3%	25.0%	27.2%
Road Environment	12.4%	18.7%	22.1%	31.2%
Pedestrian only (casualty or uninjured)	1.2%	2.6%	3.7%	5.9%
Impairment or Distraction	15.2%	14.2%	13.4%	13.2%
Vision Affected	9.8%	8.0%	9.6%	12.5%
Special codes	5.2%	4.7%	3.2%	3.7%
Vehicle Defects	4.4%	3.5%	2.3%	2.1%
Number of accidents	29,523	30,801	104,088	111,298

3.3 Speed limit

The following types of factor are reported in a larger proportion of accidents on roads with a speed limit of 70 mph than on other roads:

- ‘Impairment or distraction’
- ‘Vehicle defects’.

‘Road environment’ factors are reported in a larger proportion of accidents on 60 mph roads than on other roads.

Table 5 shows the following factors to be reported in a smaller proportion of accidents on roads with a speed limit of 30 mph or under than on other roads:

- ‘Driver/ rider error or reaction’
- ‘Injudicious action’
- ‘Road environment’.

The following types of factor are reported in a larger proportion of accidents on roads with a speed limit of 70 mph than on other roads:

- ‘Impairment or distraction’
- ‘Vehicle defects’.

‘Road environment’ factors are reported in a larger proportion of accidents on 60 mph roads than on other roads.

Table 5 Types of contributory factor reported for accidents: speed limit

Contributory factor type	Speed limit				All roads
	30 mph or less	40 - 50 mph	60 mph	70 mph	
Driver/ Rider Error or Reaction	65.3%	72.3%	69.7%	71.9%	67.5%
Injudicious Action	24.4%	29.7%	28.9%	25.7%	26.0%
Behaviour or Inexperience	24.9%	24.4%	26.9%	18.7%	24.7%
Road Environment	9.7%	16.4%	31.6%	15.0%	15.1%
Pedestrian only (casualty or uninjured)	19.3%	6.1%	2.2%	1.7%	13.0%
Impairment or Distraction	10.8%	12.4%	12.7%	14.8%	11.7%
Vision Affected	10.6%	8.8%	10.9%	8.7%	10.3%
Special codes	5.3%	3.8%	3.1%	4.9%	4.6%
Vehicle Defects	1.5%	1.9%	2.3%	4.0%	1.9%
Number of accidents	418,327	80,927	133,824	60,609	693,687

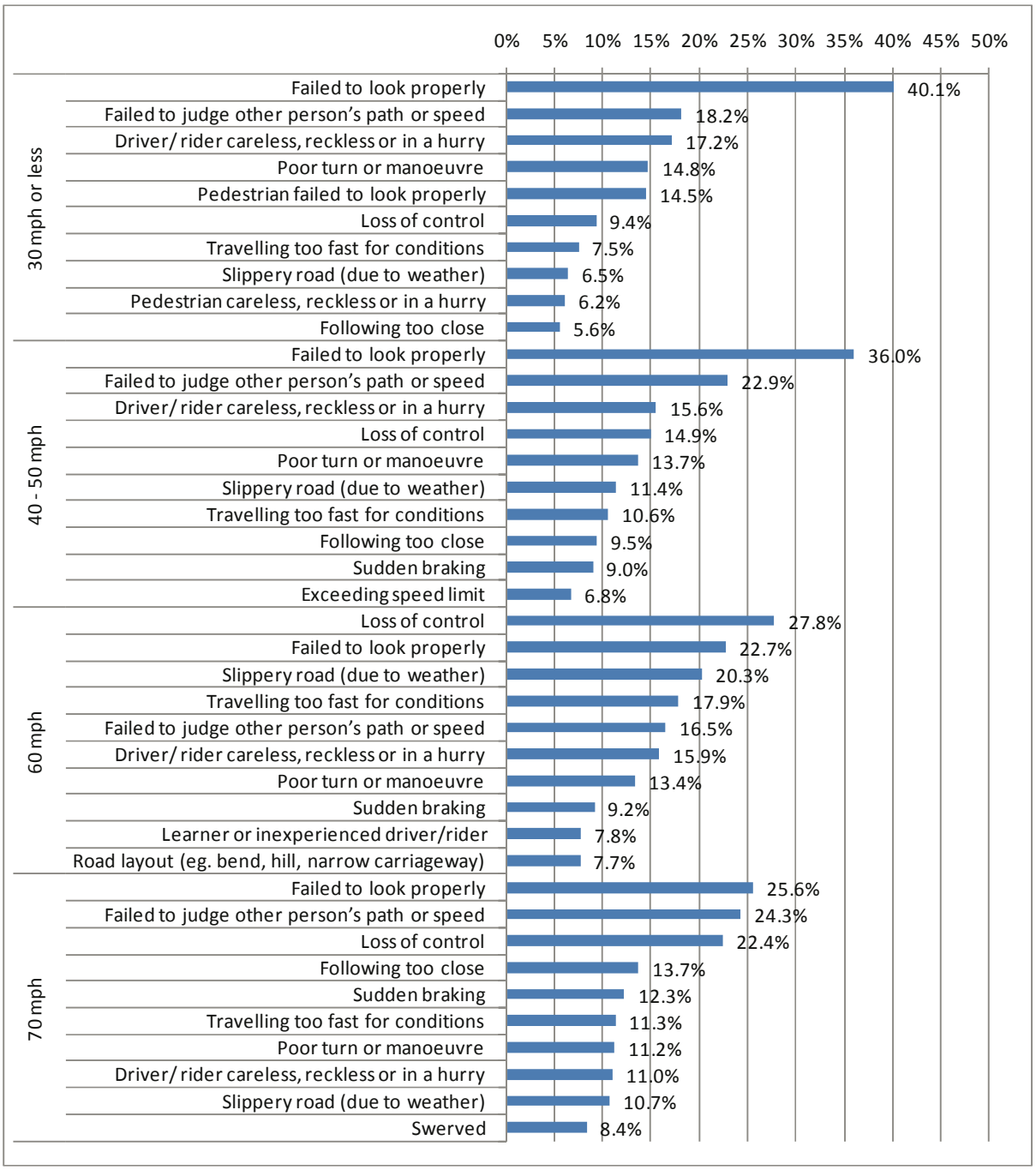
Figure 4 shows that seven factors appear in the top ten for all speed limits.

- Recording of ‘failed to look properly’, the most frequently recorded factor, varies with speed limit from 40% of accidents on roads with a speed limit up to 30 mph to 26% of accidents where the speed limit is 70 mph.
- ‘Slippery road due to weather’ is more commonly recorded on roads with a speed limit of 60 mph than elsewhere.

Factors which appear in the top ten for some speed limits only are:

- ‘Sudden braking’ is in the top ten for roads with a speed limit of 40 mph or more
- ‘Pedestrian failed to look properly’ and ‘pedestrian careless, reckless or in a hurry’ are reported in the top ten for 30 mph roads only
- ‘Learner or inexperienced driver/ rider’ and ‘road layout’ (e.g. bend, hill, narrow carriageway) are ranked nine and ten respectively on 60 mph roads but do not appear in the top ten on other roads.

Figure 4 Ten most frequently reported factors in accidents on roads with different speed limits



3.4 Type of road and accident severity

Table 6 shows that there are some differences in the types factors reported on different classes of road which vary with accident severity:

- 'Impairment or distraction' is reported in a larger proportion of fatal accidents on motorways (31%) than on other classes of road and is also reported in a larger proportion of serious accidents on motorways (24%) than other roads; but in slight accidents, the proportion of accidents with this type of factor varies less with road class.

- ‘Injudicious action’ is reported in a larger proportion of fatal accidents on A, B and minor roads than on motorways, while there is less variation with road class in the proportion of serious and slight accidents with such factors reported.
- ‘Behaviour or inexperience’ is reported in a larger proportion of fatal accidents on minor roads (32%) than on other classes of road or in accidents with less severe injuries.
- On motorways, ‘pedestrian’ factors are reported in 13% of fatal accidents but only 2% of serious and 1% of slight accidents on motorways.

Table 6 Types of contributory factor reported: road class and accident severity

Contributory factor type and severity	Road class and type			
	Motorway	A - dual carriageway	A - other	B, C or unclassified
Fatal				
Driver/ Rider Error or Reaction	61.1%	60.0%	68.2%	64.8%
Injudicious Action	23.4%	29.9%	31.9%	32.6%
Behaviour or Inexperience	16.0%	23.6%	28.0%	31.5%
Road Environment	8.1%	8.4%	10.7%	12.5%
Pedestrian only (casualty or uninjured)	13.2%	24.0%	16.8%	18.4%
Impairment or Distraction	30.9%	18.4%	18.8%	19.2%
Vision Affected	4.4%	6.0%	7.5%	8.4%
Special codes	9.2%	6.6%	4.5%	7.2%
Vehicle Defects	5.2%	3.2%	2.4%	2.8%
Number of accidents	676	1,693	4,972	4,627
Serious				
Driver/ Rider Error or Reaction	68.6%	62.1%	65.4%	58.5%
Injudicious Action	23.7%	26.2%	25.9%	24.2%
Behaviour or Inexperience	18.6%	23.6%	26.2%	26.5%
Road Environment	12.7%	11.0%	12.4%	14.4%
Pedestrian only (casualty or uninjured)	1.9%	18.5%	18.5%	23.5%
Impairment or Distraction	24.1%	14.9%	13.4%	13.9%
Vision Affected	6.8%	6.5%	8.5%	10.4%
Special codes	6.4%	5.7%	4.6%	5.5%
Vehicle Defects	5.8%	2.4%	1.9%	2.2%
Number of accidents	3,579	10,033	38,561	52,587
Slight				
Driver/ Rider Error or Reaction	71.9%	71.2%	72.4%	65.1%
Injudicious Action	27.1%	30.0%	26.7%	24.8%
Behaviour or Inexperience	16.0%	22.9%	25.2%	25.1%
Road Environment	12.7%	14.5%	13.9%	17.3%
Pedestrian only (casualty or uninjured)	0.9%	6.6%	10.1%	14.6%
Impairment or Distraction	13.3%	10.9%	10.6%	11.3%
Vision Affected	10.2%	7.8%	9.1%	12.1%
Special codes	4.8%	4.5%	4.2%	4.7%
Vehicle Defects	3.9%	2.3%	1.6%	1.7%
Number of accidents	29,716	59,608	203,557	284,078

Table 7 shows some variations with accident severity between urban and rural roads:

- ‘Driver/ rider error or reaction’ and ‘impairment or distraction’ are reported in a larger proportion of fatal and serious accidents in rural areas than urban areas

- ‘Pedestrian’ factors are reported in a larger proportion of fatal and serious accidents in urban areas than in rural areas or in slight accidents
- In slight accidents, the reporting of most factors does not vary between urban and rural areas, except that ‘road environment’ is reported more frequently in rural areas and ‘pedestrian’ factors more in urban areas

Table 7 Types of contributory factor reported: accident severity and urban and rural areas

Contributory factor type	Fatal		Serious		Slight	
	Urban	Rural	Urban	Rural	Urban	Rural
Driver/ Rider Error or Reaction	56.6%	70.2%	56.5%	68.4%	67.9%	69.8%
Injudicious Action	30.5%	31.9%	22.8%	27.7%	25.4%	27.3%
Behaviour or Inexperience	27.0%	28.6%	24.5%	27.5%	24.9%	23.7%
Road Environment	5.4%	14.0%	6.9%	21.3%	9.4%	25.4%
Pedestrian only (casualty or uninjured)	33.7%	9.7%	31.4%	6.7%	16.5%	3.5%
Impairment or Distraction	15.7%	21.7%	11.9%	17.0%	10.2%	12.6%
Vision Affected	8.4%	6.9%	9.3%	9.1%	10.1%	11.1%
Special codes	7.6%	5.3%	6.1%	4.2%	5.0%	3.7%
Vehicle Defects	1.5%	3.6%	1.7%	2.9%	1.5%	2.5%
Number of accidents	4,267	7,701	58,386	46,357	355,234	221,652

4 Accidents at different times

4.1 Time of day

Table 8 shows that the main variations are between accidents at night and those during the day:

- ‘Behaviour or inexperience’, ‘impairment or distraction’ and ‘injudicious action’ are reported in a larger proportion of accidents between 7 pm and 7 am than during the day
- ‘Vision affected’ is reported in a larger proportion of accidents between 7 am and 7 pm than at night
- ‘Road environment’ is reported in a larger proportion of accidents at night and in the morning rush hour than between 10 am and 7 pm.

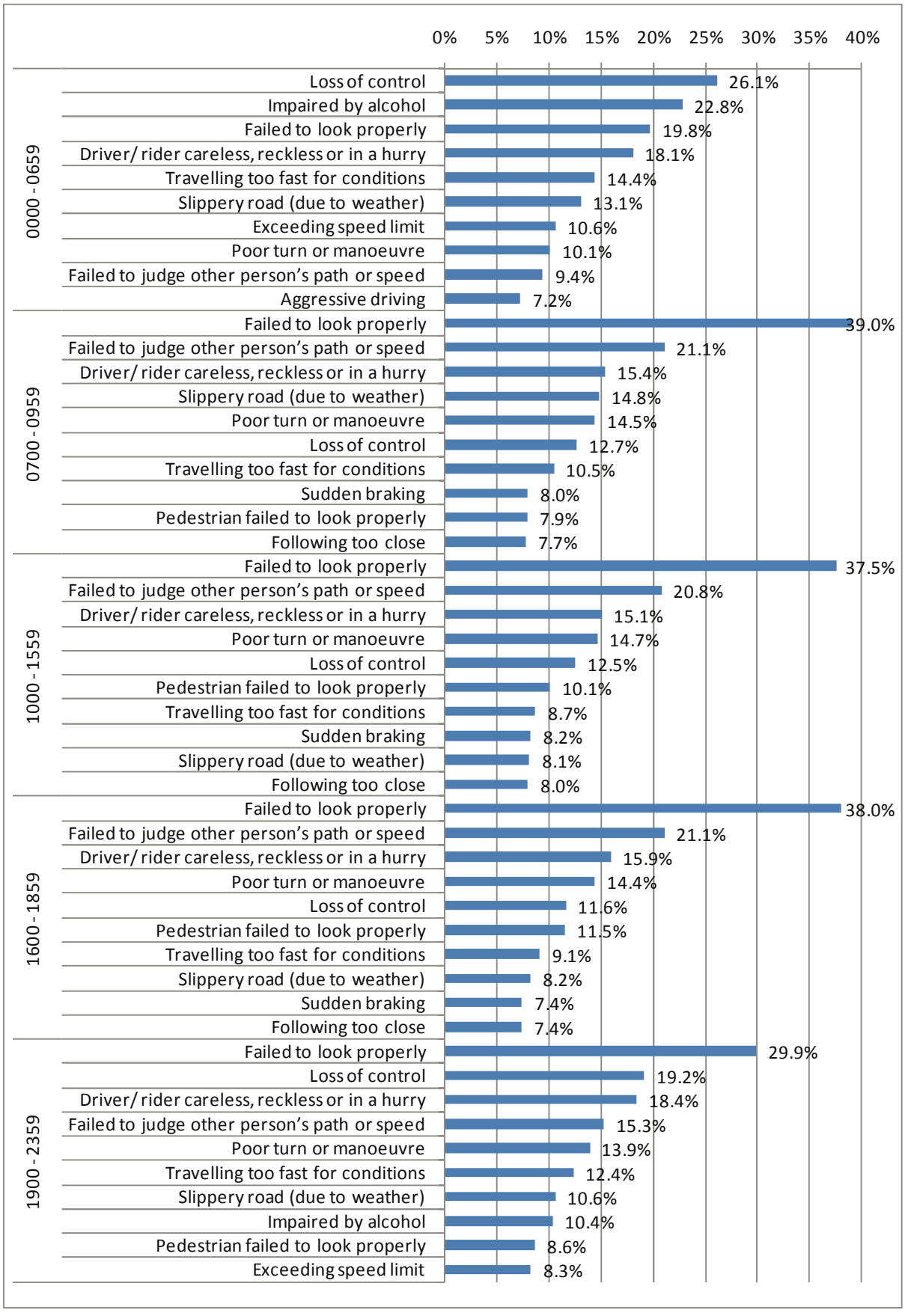
Table 8 Types of contributory factor reported: time of day

Contributory factor type	Time of day					All times
	0000 - 0659	0700 - 0959	1000 - 1559	1600 - 1859	1900 - 2359	
Driver/ Rider Error or Reaction	57.8%	70.2%	69.7%	68.3%	64.5%	67.5%
Injudicious Action	29.7%	25.3%	24.5%	25.0%	29.2%	26.0%
Behaviour or Inexperience	28.2%	21.4%	23.0%	23.9%	30.1%	24.7%
Road Environment	18.8%	19.8%	13.2%	12.7%	16.1%	15.1%
Pedestrian only (casualty or uninjured)	11.4%	10.0%	13.1%	15.2%	13.2%	13.0%
Impairment or Distraction	31.9%	7.1%	8.2%	9.2%	16.4%	11.7%
Vision Affected	6.0%	13.7%	10.6%	10.9%	7.8%	10.3%
Special codes	7.4%	3.4%	4.6%	4.0%	5.3%	4.6%
Vehicle Defects	1.8%	1.8%	2.0%	1.8%	2.0%	1.9%
Number of accidents	57,368	109,723	238,992	159,712	127,818	693,613

Figure 5 shows that seven individual factors are in the top ten at each time of day, but the ranking of the factors within the top ten varies:

- ‘Impaired by alcohol’ is the second most frequent factor reported for accidents between midnight and 7 am (23% of accidents); it features in 10% of accidents between 7 pm and midnight but is not in the top ten at other times
- ‘Exceeding the speed limit’ also features in the top ten between 7 pm and midnight and between midnight and 7 am but not at other times
- ‘Aggressive driving’ ranks tenth between midnight and 7 am but is not in the top ten factors at other times
- ‘Sudden braking’ features in the top ten in accidents between 7 am and 7 pm, but not at night
- ‘Pedestrian failed to look properly’ is one of the top ten factors in each time period except between midnight and 7 am.

Figure 5 Ten most frequently reported factors in accidents at different times of day



4.2 Weekdays and weekends

Table 9 shows that proportion of accidents with different types of factor reported is similar at weekends and on weekdays, except that 'impairment or distraction' is reported in a larger proportion of accidents at weekends (17%) than on weekdays (10%).

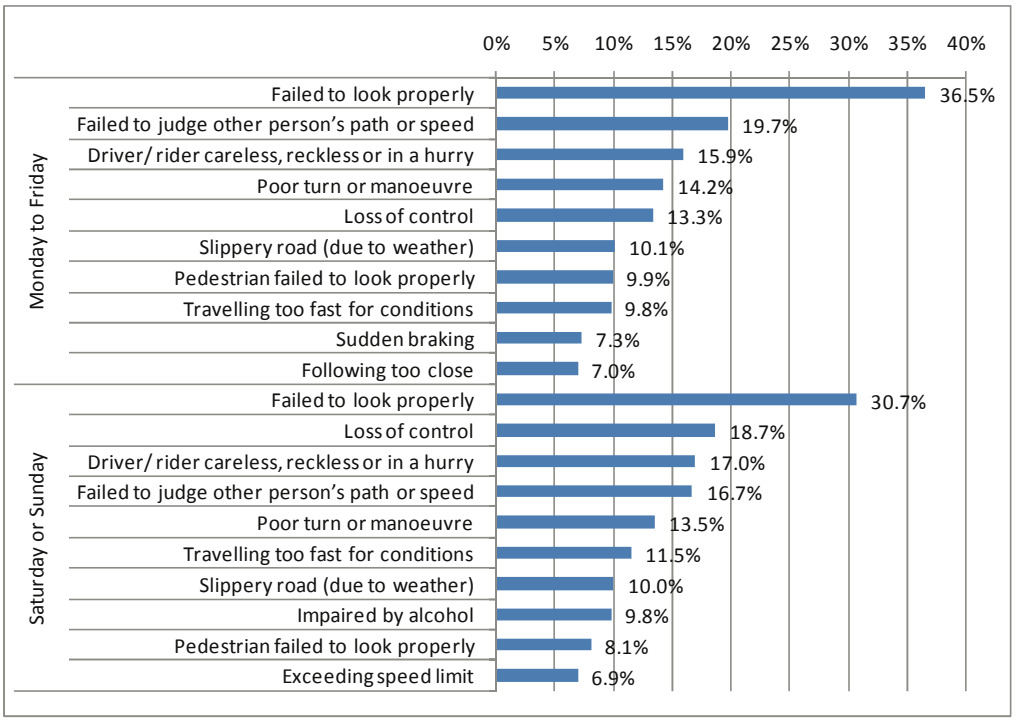
Table 9 Types of contributory factor reported: weekdays and weekends

Contributory factor type	Weekday or weekend	
	Monday to Friday	Saturday or Sunday
Driver/ Rider Error or Reaction	68.1%	65.9%
Injudicious Action	25.4%	27.8%
Behaviour or Inexperience	24.0%	26.8%
Road Environment	24.0%	26.8%
Pedestrian only (casualty or uninjured)	13.3%	12.0%
Impairment or Distraction	10.1%	16.5%
Vision Affected	10.8%	8.7%
Special codes	4.5%	5.0%
Vehicle Defects	1.9%	2.0%
Number of accidents	515,754	177,933

Figure 6 shows that of the top ten factors reported, eight are the same on weekdays and weekends, although the ranking varies. The differences are:

- 'Impaired by alcohol '(10%) and exceeding the speed limit (7%) are in the top ten at weekends only
- 'Sudden braking' and 'following too close' are in the top ten on weekdays (7%) but not at weekends.

Figure 6 Ten most frequently reported factors in accidents on weekdays and at weekends



4.3 Season

Table 10 shows that the main difference between different times of year is that 'road environment' factors are reported in a larger proportion of accidents in winter (21%) than at other times (e.g. 13% in summer).

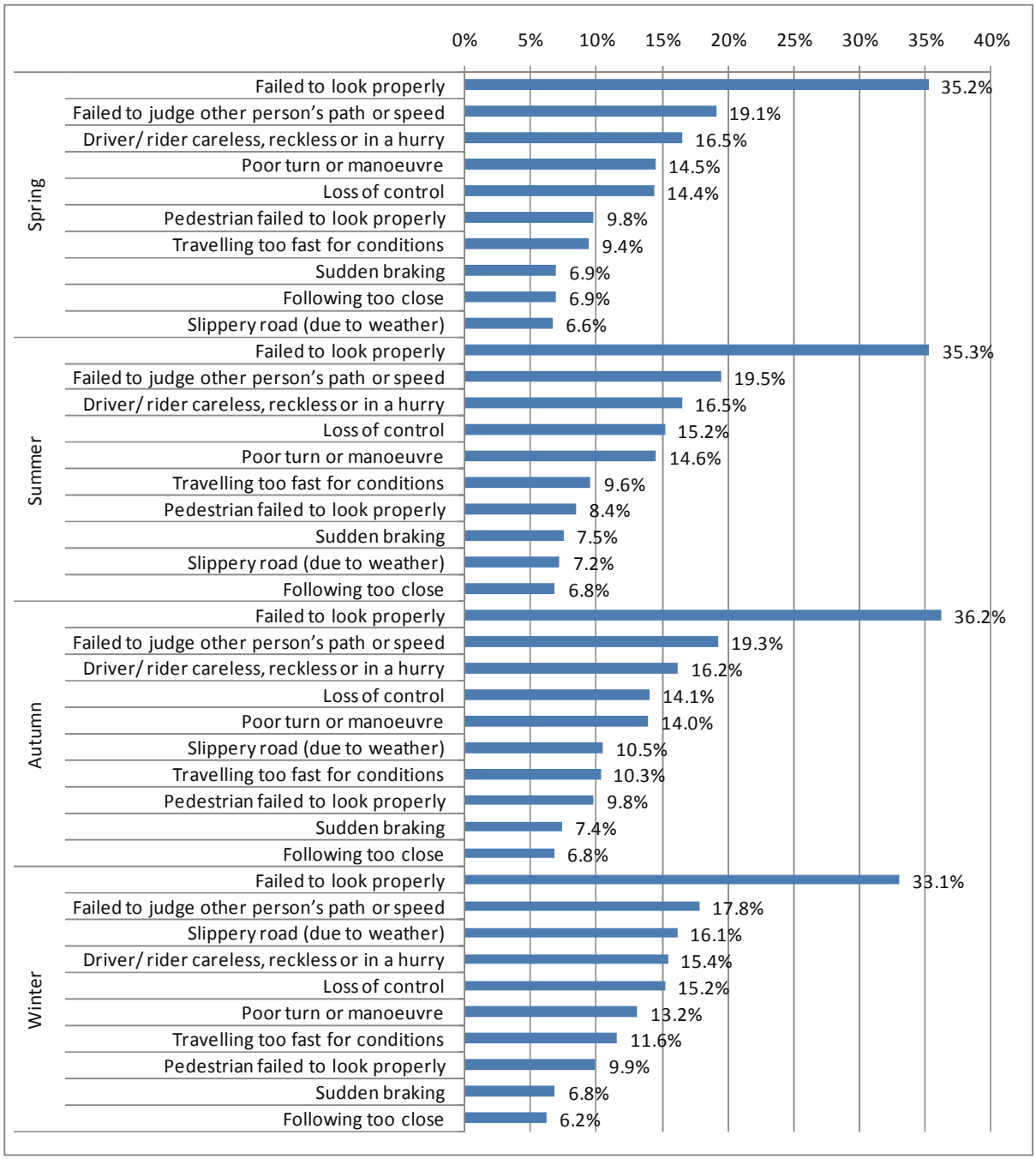
Table 10 Types of contributory factor reported: season

Contributory factor type	Season				All year
	Spring	Summer	Autumn	Winter	
Driver/ Rider Error or Reaction	67.7%	69.1%	68.0%	65.3%	67.5%
Injudicious Action	26.0%	26.1%	25.8%	26.2%	26.0%
Behaviour or Inexperience	25.4%	25.5%	24.6%	23.3%	24.7%
Road Environment	11.9%	12.7%	15.4%	20.8%	15.1%
Pedestrian only (casualty or uninjured)	13.4%	11.7%	13.2%	13.5%	13.0%
Impairment or Distraction	12.1%	12.1%	11.4%	11.3%	11.7%
Vision Affected	9.5%	9.4%	10.9%	11.1%	10.3%
Special codes	4.9%	4.8%	4.4%	4.5%	4.6%
Vehicle Defects	1.9%	2.2%	1.8%	1.7%	1.9%
Number of accidents	166,279	176,710	185,641	165,057	693,687

Figure 7 shows that in each season, the top ten factors reported in accidents are the same, but their ranking differs.

- The main difference is that 'slippery road (due to weather)' ranks third in winter (16% of accidents) but as expected, has a lower ranking at other times of year (7% in spring and summer, 10% in autumn).

Figure 7 Ten most frequently reported factors in accidents at different times of year



4.4 Time and severity

Table 11 shows that within an accident severity category, many of the types of factor are reported in a similar proportion of accidents in each time period, with a few exceptions:

- 'Impairment or distraction' and 'injudicious action' are reported in a higher proportion of accidents between midnight and 7 am, to a lesser extent in the evening and much less during the day, in the case of fatal, serious and slight accidents.

Table 11 Types of contributory factor reported: time of day and severity

Contributory factor type and severity	Time of day				
	0000 - 0659	0700 - 0959	1000 - 1559	1600 - 1859	1900 - 2359
Fatal					
Driver/ Rider Error or Reaction	57.4%	69.2%	70.7%	67.4%	61.5%
Injudicious Action	36.0%	28.6%	26.5%	30.5%	35.7%
Behaviour or Inexperience	29.1%	22.7%	23.6%	24.9%	30.6%
Road Environment	12.1%	15.3%	10.2%	8.9%	10.6%
Pedestrian only (casualty or uninjured)	17.5%	14.2%	16.8%	21.5%	19.6%
Impairment or Distraction	33.5%	15.5%	14.3%	14.8%	21.2%
Vision Affected	5.3%	10.7%	9.0%	8.1%	5.2%
Special codes	9.1%	4.1%	5.7%	4.9%	6.2%
Vehicle Defects	2.0%	3.8%	3.0%	2.3%	3.4%
Number of accidents	2,135	1,294	3,396	2,279	2,864
Serious					
Driver/ Rider Error or Reaction	54.1%	66.7%	63.8%	62.0%	59.3%
Injudicious Action	30.4%	23.6%	22.5%	22.9%	29.0%
Behaviour or Inexperience	29.1%	22.7%	23.6%	24.9%	30.6%
Road Environment	14.7%	18.1%	12.4%	11.2%	13.3%
Pedestrian only (casualty or uninjured)	16.6%	16.1%	20.9%	23.9%	20.6%
Impairment or Distraction	36.5%	8.2%	9.2%	9.6%	19.1%
Vision Affected	5.3%	13.4%	10.0%	10.0%	6.7%
Special codes	8.2%	4.0%	5.2%	4.3%	5.6%
Vehicle Defects	2.1%	2.1%	2.3%	2.1%	2.3%
Number of accidents	11,334	13,613	33,518	24,281	22,002
Slight					
Driver/ Rider Error or Reaction	58.8%	70.8%	70.7%	69.5%	65.7%
Injudicious Action	30.4%	23.6%	22.5%	22.9%	29.0%
Behaviour or Inexperience	27.9%	21.2%	22.9%	23.7%	30.0%
Road Environment	20.1%	20.1%	13.4%	13.1%	16.9%
Pedestrian only (casualty or uninjured)	9.7%	9.1%	11.7%	13.5%	11.5%
Impairment or Distraction	30.6%	6.8%	7.9%	9.0%	15.7%
Vision Affected	6.3%	13.7%	10.7%	11.1%	8.1%
Special codes	7.1%	3.3%	4.5%	4.0%	5.2%
Vehicle Defects	1.7%	1.7%	2.0%	1.8%	1.9%
Number of accidents	43,899	94,816	202,078	133,152	102,952

Similarly, Table 12 shows that ‘impairment or distraction’ factors are reported more frequently for accidents at the weekend than in the week, in fatal, serious and slight accidents. ‘Injudicious action’ is reported more frequently for fatal accidents at weekends (35%) than on weekdays (30%), but the difference in reporting of ‘injudicious action’ for serious and slight accidents between weekends and weekdays is smaller.

Table 12 Types of contributory factor reported: weekdays and weekends and severity

Contributory factor type	Fatal		Serious		Slight	
	Monday to Friday	Saturday or Sunday	Monday to Friday	Saturday or Sunday	Monday to Friday	Saturday or Sunday
Driver/ Rider Error or Reaction	65.0%	66.0%	62.0%	61.1%	69.2%	66.9%
Injudicious Action	29.5%	35.2%	24.0%	27.4%	25.6%	27.7%
Behaviour or Inexperience	26.7%	30.8%	24.9%	28.0%	23.8%	26.4%
Road Environment	10.4%	12.1%	13.0%	13.9%	15.4%	16.0%
Pedestrian only (casualty or uninjured)	19.4%	15.8%	21.4%	18.1%	11.8%	10.7%
Impairment or Distraction	17.5%	23.8%	12.1%	19.3%	9.6%	15.7%
Vision Affected	10.0%	7.4%	10.0%	7.4%	11.0%	9.0%
Special codes	5.1%	5.5%	5.1%	5.5%	4.4%	4.8%
Vehicle Defects	2.8%	2.9%	2.2%	2.2%	1.8%	1.9%
Number of accidents	7,962	4,006	74,477	30,283	433,315	143,644

5 Contributory factors reported for vehicles: cars and motorcycles

While a large proportion of accidents have at least one contributory factor reported, many vehicles involved in accidents have no contributory factor; 46% of cars and 39% of motorcycles have no contributory factor reported. The figures presented in this section show the percentages of vehicles with contributory factors as a percentage of all vehicles in accidents where the police attended the scene, including those with no contributory factor reported.

5.1 Car drivers

The proportion of car drivers with no contributory factor reported is lower for young drivers and drivers over 70 than for those between 30 and 70, as Table 13 shows.

- 'Driver error or reaction' is reported more frequently for younger and older drivers than for those between 30 and 70, reflecting factors such as poor judgement by younger drivers and decrease in functioning among older drivers
- 'Injudicious action' and 'behaviour or inexperience' are reported more frequently for drivers under 30, and particularly under 20, than for drivers over 30
- 'Impairment or distraction' is reported more frequently for drivers over 70 and slightly more frequently for those under 30, than for those aged 30-70, again reflecting decrease in functioning among older drivers
- 'Road environment' factors are also reported more frequently for younger drivers, particularly those under 20, reflecting inexperience and poor judgement in more difficult driving conditions
- 'Vehicle defects', although reported in only a small proportion of accidents, are reported for a larger proportion (1%) of drivers under 30, who tend to drive older vehicles, than for drivers over 30 (around 0.5% - 0.7%).

Table 13 Types of contributory factor reported for cars: driver age

Contributory factor type	Driver age									All ages
	Under 20	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90+	
Driver/ Rider Error or Reaction	49.8%	42.1%	34.7%	32.2%	32.4%	35.3%	46.0%	58.7%	65.0%	38.1%
Injudicious Action	24.9%	18.3%	12.4%	10.3%	9.4%	8.9%	9.7%	10.9%	11.9%	14.0%
Behaviour or Inexperience	33.4%	15.3%	9.5%	7.5%	6.9%	6.9%	8.5%	10.6%	12.1%	12.3%
Road Environment	16.6%	11.4%	7.9%	7.1%	6.5%	6.0%	5.8%	6.2%	5.8%	9.1%
Impairment or Distraction	8.3%	8.3%	6.2%	5.2%	5.0%	5.5%	8.4%	12.4%	16.6%	6.7%
Vision Affected	6.3%	6.2%	5.7%	5.7%	5.9%	6.7%	7.9%	9.6%	9.5%	6.1%
Special codes	2.7%	2.1%	1.9%	1.5%	1.2%	1.3%	1.6%	2.5%	5.0%	1.8%
Vehicle Defects	1.4%	1.1%	0.7%	0.6%	0.5%	0.5%	0.6%	0.7%	0.6%	0.8%
No factor recorded for vehicle	26.3%	39.0%	50.0%	54.1%	54.8%	52.0%	40.3%	25.8%	18.9%	45.7%
Number of car drivers	88,285	248,251	207,255	179,811	113,795	64,241	33,993	13,804	862	950,297

Table 13 shows that the variation in the frequency of reporting different types of factor between drivers in their 30s, 40s, 50s and 60s is relatively small; the main differences are between younger drivers, older drivers and drivers in this 30 – 69 group. Therefore the analysis of the top ten individual factors which follows in Figure 8 shows the top ten factors reported for drivers in three key age groups with different levels of accident involvement: young drivers under 25, 25 to 69 year olds and over 70s. Six of the top ten factors reported for drivers in each of these groups are the same in each group and in most cases these are in the top six, but there are differences in ranking and frequency of reporting.

The main differences are between drivers over 70 and others:

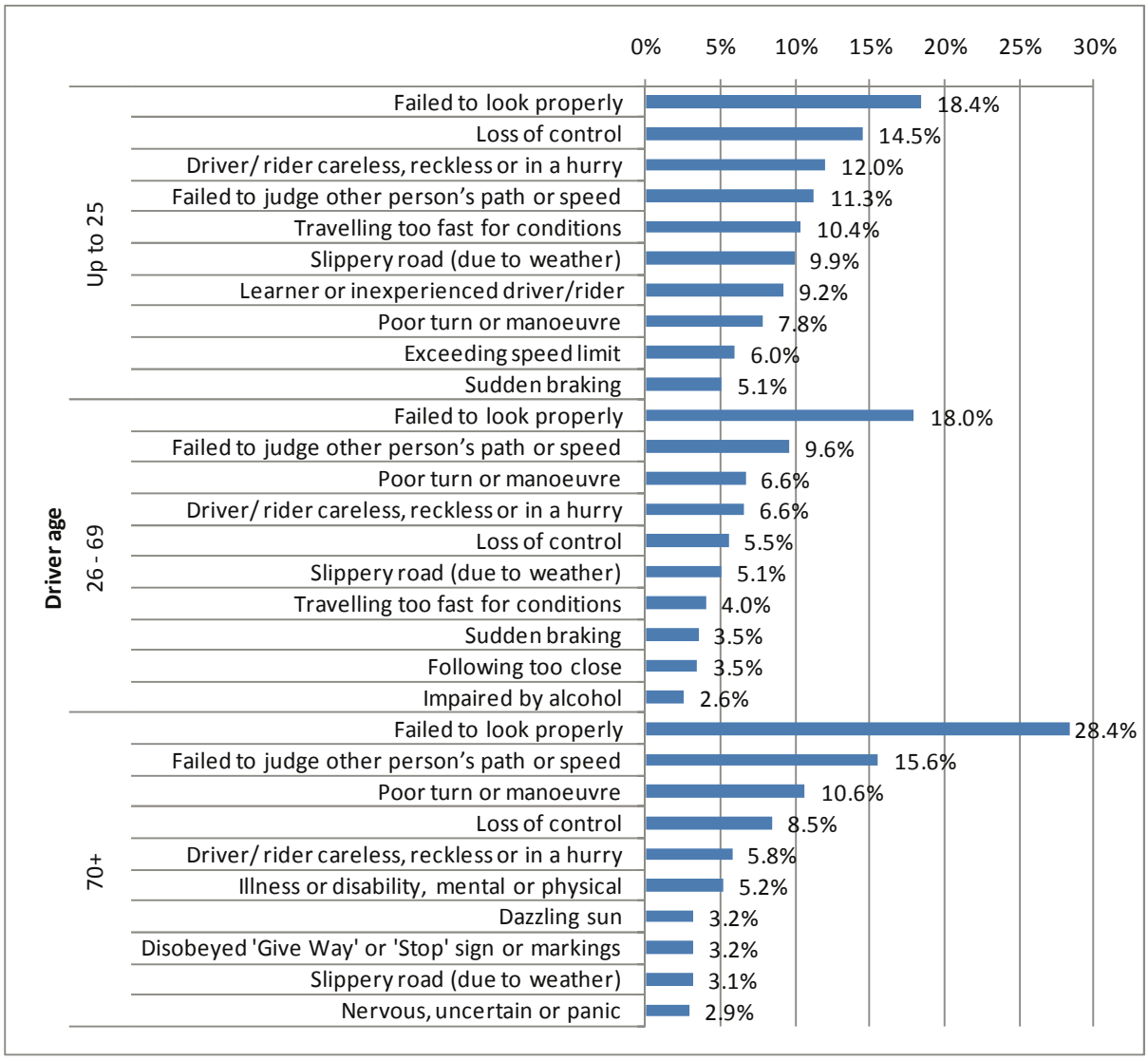
- 'Failure to look properly' is reported more frequently than other factors in each of the three age groups but is reported far more frequently in the case of older drivers (28%) than in the other two groups (18%)
- The factors ranked six to ten in frequency of reporting for older drivers include some associated with ageing and difficulty coping with the traffic environment which do not appear in the top ten for other drivers: 'illness or disability', 'dazzling sun', 'disobeyed Give Way or Stop sign' and 'nervous, uncertain or in a panic'.

In the other age groups:

- Some of the factors associated with more aggressive driving styles appear in the top ten: 'exceeding the speed limit' in the under 25 age group and 'travelling to fast for the conditions', 'sudden braking', 'following too close', in the under 25 and 25 – 69 age groups
- Alcohol features in the top ten factors for drivers aged 25 – 69 (3%) and ranks 11 (4.6%) in the 17-24 age group
- Inexperience features in the top ten for those under 25
- 'Slippery road due to weather' is recorded for almost 10% of drivers under 25 but 5% of those aged 25 - 69; this may be associated more driving on rural roads but may also reflect lack of experience with these conditions.

These differences in the frequency with which contributory factors are assigned to drivers of different age groups are consistent with findings of other research (as summarised in Hopkin 2010 and Hopkin 2008) and can to some extent be explained by where drivers of different ages are driving.

Figure 8 Ten most frequently reported factors for cars: driver age



Almost half of the cars involved in accidents which are driven by women have no contributory reported (49%) this is rather higher than the proportion for cars driven by men (44%).

The main difference between men and women in the types of factor reported is that a smaller proportion of women than men are attributed with 'injudicious action' and 'behaviour or inexperience'.

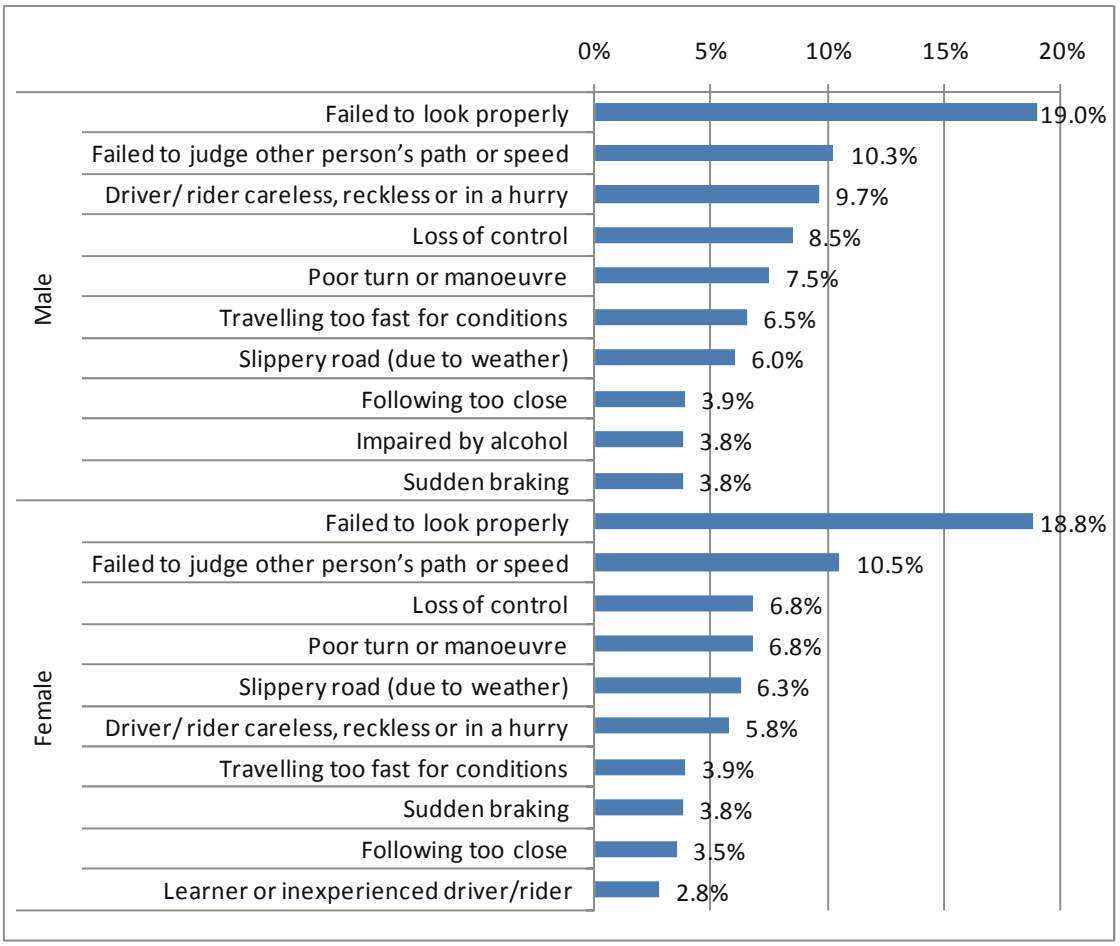
Table 14 Types of contributory factor reported for cars: male and female drivers

Contributory factor type	Driver gender	
	Male	Female
Driver/ Rider Error or Reaction	38.9%	37.0%
Injudicious Action	15.8%	11.0%
Behaviour or Inexperience	14.2%	10.0%
Road Environment	8.8%	9.0%
Impairment or Distraction	7.6%	5.0%
Vision Affected by	5.8%	6.4%
Special codes	2.3%	1.3%
Vehicle Defects	0.9%	0.7%
No factor recorded for vehicle	43.8%	48.7%
Number of car drivers	633,601	348,294

Nine of the top ten individual contributory factors are the same for men and women. 'Careless, reckless or in a hurry' is recorded more frequently for men (10%) than women (6%), while 'travelling too fast for the conditions' is recorded for more men (7%) than women (4%).

- 'Impaired by alcohol' appears in the top ten factors for men (reported for 4% of men driving a car involved in an accident)
- 'Learner or inexperienced driver' is in the top ten for women (reported for 3% of women driving a car involved in an accident).

Figure 9 Ten most frequently reported factors for cars: male and female drivers



5.2 Motorcyclists

As for car drivers, the proportion of motorcyclists with no contributory factor reported is lower under the age of 30 and over 70 than in the 30-70 age group, as Table 15 shows:

- 'Rider error or reaction' is reported more frequently for those over 70 (48%) and under 30 (43%) than for those aged 30-70 (39%)
- 'Behaviour or inexperience' is reported for a larger proportion of riders under 30 (and particularly those under 20) than for riders in other age groups
- 'Injudicious action' is reported rather less frequently for riders over 50 than in other age groups.

Table 15 Types of contributory factor reported for motorcycles: rider age

Contributory factor type	Rider age							All riders
	Under 20	20-29	30-39	40-49	50-59	60-69	70+	
Driver/ Rider Error or Reaction	43.1%	43.0%	40.1%	38.9%	38.8%	40.7%	47.7%	41.3%
Injudicious Action	17.2%	18.4%	15.3%	13.5%	10.6%	10.2%	8.5%	15.6%
Behaviour or Inexperience	34.7%	20.5%	13.7%	10.4%	8.7%	8.3%	7.0%	19.2%
Road Environment	13.4%	11.7%	11.4%	12.2%	13.6%	12.6%	12.4%	12.3%
Impairment or Distraction	4.3%	4.2%	3.1%	2.6%	2.3%	2.5%	2.2%	3.5%
Vision Affected	5.2%	4.6%	4.3%	4.4%	4.4%	4.5%	4.2%	4.6%
Special codes	3.3%	2.0%	1.6%	1.6%	1.4%	1.4%	1.6%	2.1%
Vehicle Defects	1.7%	1.2%	0.8%	0.9%	1.0%	1.1%	1.6%	1.1%
No factor recorded for vehicle	31.6%	36.8%	42.3%	44.5%	45.0%	44.3%	37.1%	39.1%
Number of riders	24,051	24,262	21,495	18,929	8,275	2,549	669	100,230

Figure 10 shows the top ten factors reported for riders in three key age groups, with different levels of accident involvement: young drivers under 30, 30 to 59 year olds and over 60s.

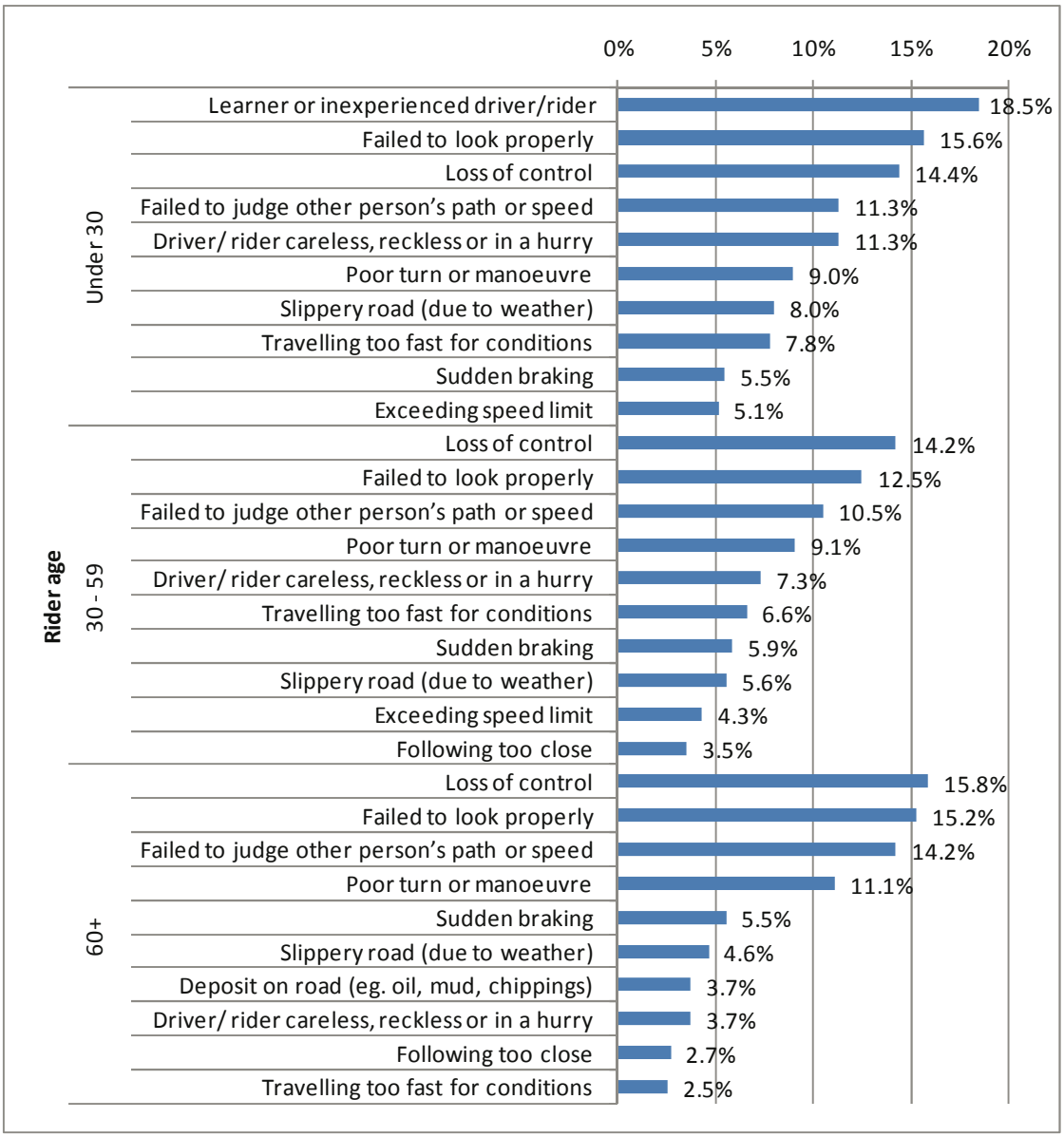
- ‘Failed to look properly’ and ‘loss of control’ were the most frequently reported factors for riders aged 30 – 60 and over 60 (13% - 16%).
- ‘Learner/ inexperienced’ was the factor reported most frequently for riders under 30 (19%), with ‘failed to look properly’ and ‘loss of control’ ranking second and third (16% and 14%).

Ranking of factors varied between age groups but most of the top ten factors were the same for riders in each of the three age groups. Factors which did not appear in the top ten in all three age groups were:

- ‘Deposit on road’ - 4% of riders over 60 but less frequently for other age groups
- ‘Learner/ inexperienced’ – 19% of riders under 30
- ‘Exceeding speed limit’ – 5% of riders under 30 and 4% of riders aged 30 – 59 but fewer riders over 60.

These differences between age groups are consistent with the findings of other research on motorcycle accidents (see Hopkin 2009).

Figure 10 Ten most frequently reported factors for motorcycles: rider age



5.3 Comparison between car drivers and motorcyclists

As mentioned earlier, the proportion of motorcyclists with no contributory factor reported is lower than for car drivers. Comparison of Table 13 with Table 15 shows:

- 42-45% of motorcyclists in their 30s, 40s, 50s and 60s have no contributory factor reported compared with 52-55% of car drivers in these age groups
- 32% of motorcyclists under the age of 20 have no contributory factor reported compared with 26% of car drivers under 20.

The main differences in the types of factor reported for motorcyclists and car drivers are:

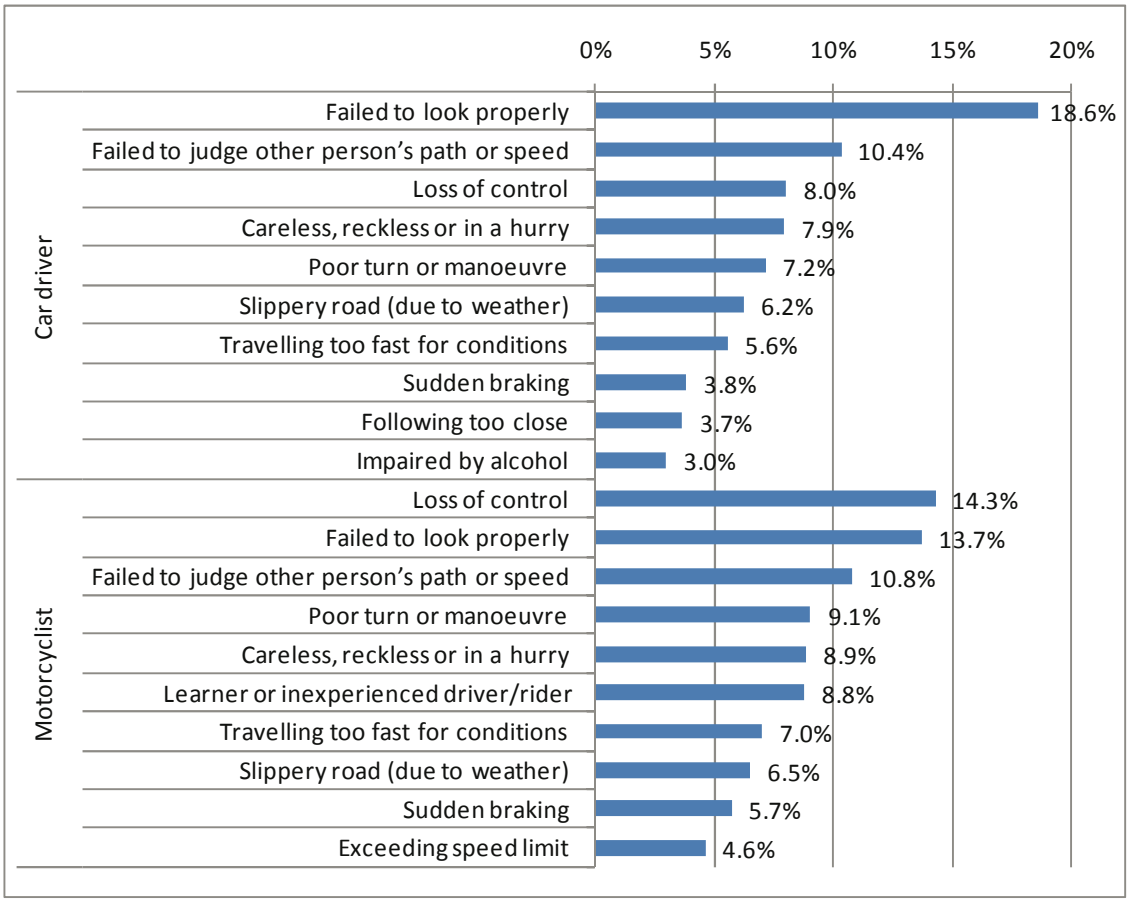
- 'Behaviour or inexperience' is reported more frequently for motorcyclists than for car drivers, particularly between the ages of 20 and 50, reflecting the greater take up of motorcycling over the age of 30 compared with driving

- ‘Road environment’ is reported more frequently for motorcyclists than car drivers over the age of 30.

Figure 11 shows that of the top ten factors reported for car drivers and motorcyclists, nine are the same, although the ranking varies:

- ‘Loss of control’ is more frequently reported for motorcyclists than other factors (14%) and is less frequently reported for car drivers (8%)
- ‘Failure to look properly’ is more frequently reported for car drivers than other factors (19%) and is less frequently reported for motorcyclists (14%)
- ‘Impaired by alcohol’ is the tenth most frequently reported factor for car drivers (3%) but ranks 15 (2%) for motorcyclists
- ‘Learner or inexperienced’ ranks 6 for motorcyclists (9%) but ranks 12 for car drivers (3%).

Figure 11 Ten most frequently reported factors: cars and motorcycles



6 Summary and conclusions

6.1 Summary of results

Types of factor

Human factors are recorded as contributing to the cause of accidents far more frequently than the road environment or defects in the vehicle.

The most frequently recorded factor type is ‘driver/ rider error or reaction’, in 68% of all accidents. Two other types of factor are reported in a quarter of all accidents: ‘injudicious action’ and ‘behaviour or inexperience’. Between 10 and 15% of accidents are recorded in the ‘road environment’, ‘pedestrian’, ‘impairment or distraction’ or ‘vision’ groups. Vehicle defects are recorded in just 2% of accidents.

Accident severity

There are some differences between fatal, serious and slight accidents in the individual contributory factors recorded.

‘Loss of control’ is recorded in a third of fatal accidents, a fifth of serious accidents and fewer slight accidents.

‘Failure to look properly’ is the second most frequently recorded factor in fatal accidents (one fifth) and the most frequently recorded factor in serious and slight accidents (one third).

‘Failed to judge another person’s path or speed’ is the second most frequently recorded factor in slight accidents (one fifth) but less often in serious or slight accidents.

‘Travelling too fast for the conditions’ and ‘exceeding the speed limit’ are more frequently recorded for fatal accidents than less severe incidents.

‘Slippery road due to weather’ is the main ‘road environment’ factor and is more commonly reported for slight accidents (one tenth) than fatal or serious accidents.

Where accidents happen

‘Failed to look properly’ is recorded more frequently than other factors on all types of road but is more frequently recorded on roads in towns, roads which are not motorways, and roads with a speed limit of 50 mph or less, than on rural roads, motorways and high speed roads.

‘Failed to judge another person’s path or speed’ the second or third most frequently recorded on most types of road and at most speed limits, the exceptions being minor roads and 60 mph roads.

‘Loss of control’ is recorded in a higher proportion of accidents on motorways, high speed roads and rural roads, than lower speed and urban roads.

Factors associated with pedestrians are recorded more frequently on minor urban roads than other roads, reflecting different patterns of use.

‘Learner or inexperienced’ is recorded as a contributory factor more frequently on rural roads, minor roads and 60 mph roads than elsewhere.

‘Slippery road due to weather’ is one of the top ten factors on all types of road but is recorded more frequently on 60 mph roads and rural roads than elsewhere.

Factors associated with impairment or distraction are more frequently recorded in fatal and serious accidents on motorways and rural roads, than in slight accidents or more severe accidents on other roads.

‘Behaviour or inexperience’ is reported in a larger proportion of fatal accidents on minor roads than on other roads or in accidents with less severe injuries.

When accidents happen

The contributory factors recorded vary between accidents at night and in the daytime. Between 7 pm and 7 am, ‘loss of control’, ‘failed to look properly’ and ‘driver/ rider careless reckless or in a hurry’ are the most frequently recorded factors. In addition between midnight and 7 am ‘impaired by alcohol’ is the second most frequently recorded factor.

At other times, ‘failed to look properly’, ‘failure to judge another person’s path or speed’ and ‘driver/ rider careless reckless or in a hurry’ are the three most commonly recorded factors, with ‘failed to look properly’ recorded far more frequently than at night.

Comparing weekdays and weekends shows that many of the most commonly recorded factors are recorded to a similar extent on weekdays and weekends. However ‘impaired by alcohol’ and ‘exceeding the speed limit’ are among the ten most frequently recorded factors at weekends but not during the week , while ‘sudden braking’ and ‘following too close’ are more frequently recorded on weekdays than at weekends.

In winter, ‘slippery road due to weather’ is recorded more frequently than at other times of year but otherwise differences between seasons in the types of factor recorded are small.

Cars and motorcycles involved in accidents

A larger proportion of motorcyclists involved in accidents are reported with a factor thought to have contributed to the accident, compared with car drivers. Younger motorcyclists and younger car drivers more frequently have contributory factors reported than their older counterparts.

Younger and older drivers and riders (under 30 and over 70) have ‘error or reaction’ factors recorded in a larger proportion of cases than among those between 30 and 70.

Young drivers and riders also have ‘behaviour or inexperience’ factors attributed to them more frequently than older people.

Older car drivers have ‘failed to look properly’ recorded more frequently than younger drivers and factors associated with ageing and difficulty coping with the traffic environment, which are less frequently recorded for younger drivers.

Car drivers under 25 have ‘exceeding the speed limit’ ‘travelling too fast for the conditions’ and ‘learner/ inexperienced’ recorded more frequently than drivers over 25. ‘Exceeding the speed limit’ features in the top ten factors for motorcyclists in the under 30 and 30 – 59 age groups.

Alcohol features in the top ten factors for drivers aged 25 – 69 and ranks 11 for drivers under 25, but is less frequently recorded for motorcyclists.

Comparisons between men and women car drivers show many similarities in the contributory factors reported, but ‘careless, reckless or in a hurry’, ‘travelling too fast for the conditions’ and ‘impaired by alcohol’ are recorded more frequently for men than for women, while ‘learner or inexperienced driver’ is recorded more frequently for women.

6.2 Conclusions

Improving safety

The data provide a subjective indication of the causes of accidents, not a definitive view. Factors which are more obvious to the police officer attending will tend to be recorded more than those which are less obvious, while those which allocate blame or imply careless or reckless behaviour are less likely to be recorded. However the results can still be used to highlight areas for further investigation or improvement in road safety.

It is clear that driver and rider errors, particularly failure to look properly and failure to judge the path or speed of other road users correctly remain significant contributory factors in road accidents. Factors such as 'careless, reckless or in a hurry', 'loss of control' and 'travelling too fast for the conditions' together make up another significant group which could be addressed by a more measured style of driving, taking greater account of the traffic and road conditions prevailing. These human factors are attributed to drivers of all ages, although some factors are more frequently assigned to young drivers and others to older drivers, which points to the value of post-test driver training for improving the quality of driving, and hence road safety.

Some factors which are reported in relatively few accidents in total, are more prominent in specific situations. Analysing these specific groups of accidents can provide insights into their causes which may help to develop measures for improving road safety - for example accidents involving specific groups of road users, or particular combinations of accident circumstances. In fatal accidents on motorways for example, alcohol, fatigue and vehicle defects (mainly tyres and brakes) are more frequently reported than in other accidents. Information on the increased risks of driving in these specific circumstances may encourage drivers to take a more responsible approach.

Factors associated with the road environment are less frequently attributed as factors contributing to the cause of accidents than the 'human' factors. Engineering measures have been developed to address many of these, but an anticipatory and measured driving style will reduce the role of factors such as road surface conditions and the road layout in causing accidents.

The analytical approach

One of the objectives of this report was to explore the potential for the data to be used further. The results have demonstrated the feasibility of comparing the types of contributory factors recorded for four or five different accident circumstances. Graphical presentation of the 'top ten' individual factors recorded for two or three different sub-groups of accidents has successfully depicted the key factors and how they vary (or not) with accident circumstances. More specific conclusions on the options for further analysis are summarised below.

Number of cases for analysis

This analysis has not been limited by small numbers of cases. With nearly 700,000 accidents having contributory factors recorded, it would be feasible to undertake further analysis of variations in contributory factors with accident circumstances, or of accidents with specific factors recorded. There is also some scope for further analysis of contributory factors attributed to broad sub-groups of drivers or riders. However it is recommended that

analysis should focus on simple categorisations and on two-dimensional rather than three-dimensional comparisons, as explained below.

Approach to presentation

Presenting the percentage of accidents or vehicles for which the full range of 77 factors was reported (as in Table 1) provides a comprehensive picture of the data. However because most of the factors are reported in a very few cases, the value of these '77 factor' tables appears limited.

The graphs showing the 'top ten' individual factors provide a snapshot of the key factors (reported for at least 5-8% of accidents and at least 3-5% of drivers or riders) and how they vary with accident circumstances and driver characteristics. This appears to be a more useful approach to presenting the individual factors than the tables covering all 77, and does show some differentiation between sub-groups, often in the factors ranked towards the bottom of the top ten.

The tables showing how the incidence of reporting the nine contributory factor types vary with accident circumstances and driver or rider characteristics provide an overview. In further work, commentary on the main factors reported within some of these groups would enhance this type of analysis.

Complexity of analysis

Some of the analysis has compared factors in fatal, serious and slight accidents on different types of road or time of day. Presenting variations in the incidence of the types of contributory factor becomes complex when there are more than four or five categories to compare (such as Table 4, Table 6, Table 7, and Table 11). However the results show that combining fatal and serious accidents into one group to simplify the comparisons would mask differences in factors reported in fatal and serious accidents. Graphs illustrating the top ten individual factors should be limited to two or three categories (see for example Figure 2 and Figure 5 which have more categories).

For any future analysis of the contributory factors data, it would be worthwhile to refine the grouping of accidents to simplify the presentation and focus on the main differences, taking these considerations into account.

Confidence in factors recorded

When contributory factors are recorded, they are assigned a 'confidence' rating by the police officer at the scene: factors are recorded as either 'possible' or 'very likely'. One element of further analysis could focus on the contributory factors recorded as 'very likely', omitting those classified as 'possible', to investigate whether different patterns and associations emerge among the factors which police officers felt more certain about recording.

7 Acknowledgements

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Thanks are due to Neil Greig, who managed the project at the IAM.

8 References

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The IAM

President: Nigel Mansell OBE

Chairman: Alistair Cheyne OBE

The IAM (Institute of Advanced Motorists) is the UK's largest independent road safety charity, dedicated to raising driving standards, engaging with the road-using public and influencing road safety policy.

Established in 1956, the IAM is best known for the advanced driving test and the advanced driving course. The IAM directly influences the driving and riding of more than 160,000 road users a year (full members, associates and commercial clients) in the UK and Ireland.

Brunel University found most drivers and riders who receive advanced driving coaching developed significantly better skills, from speed management and cornering to hazard awareness and keener anticipation.

IAM Drive & Survive is the commercial arm of the IAM and provides occupational driver training and risk management products.

IAM products include:

- Skill for life: the advanced driver programme
- DriveCheck
- DriveCheck 55, for older drivers
- Momentum, for younger drivers
- Special assessment, for advanced drivers
- Skill for life: the advanced motorcyclist programme
- RoadRider+
- RideCheck+
- RideCheck
- Special assessment, for advanced riders
- CycleCheck
- CycleRide
- CycleRide+
- Ecolution – for cheaper and greener motoring

IAM Drive & Survive products include:

- Online learning
- Online risk assessments
- Seminar learning
- On-road learning and assessment

IAM policy and research

Director of policy and research: Neil Greig

Established in 2007 the IAM policy and research division supports the advocacy work of the IAM. Core activities include:

- undertaking a unique programme of road safety research
- encouraging responsible motoring by promoting advanced driver and rider training
- promoting practical evidence-based policies that improve the safety of all road users

IAM research projects published in the last four years include:

- Who's in the driving seat? Gender differences in driving attitudes and behaviour
- IAM older drivers – safe or unsafe?
- IAM motorcycling facts
- Cycling motorists
- 16 – the dangerous age for moped riders
- Young drivers – where, when and why they are unsafe
- Barriers to change – designing safer roads for motorcyclists
- Rural roads – the biggest killer
- Star rating roads for safety (partnership with the Highways Agency)
- Traffic laws and policing – does Sweden do them better?
- Child safety – a guide for parents

More information for each can be found at **iam.org.uk/reports**

The study was carried out by road safety researcher Jean Hopkin.

The recommendations shown in the foreword are those of the IAM.

The IAM welcomes debate on the facts and issues that Jean Hopkin's analysis presents; please email us at **info@iamtrust.org.uk** to tell us what you think should be done to increase the priority given to solving the human factors in crashes.

For more information on the IAM visit our website: **www.iam.org.uk**

As the UK's leading road safety charity, the IAM supports the raising of driving and riding standards and campaigns for increased skills for all road users.

Our programmes are specifically designed to help you learn and apply the essential ingredients of advanced motoring. You'll immediately notice a real difference and so will your passengers.

The IAM, dedicated to raising standards and helping save lives on our roads.

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DRIVING ROAD SAFETY

It's late. You've got a car full of mates. They're fired up and encouraging you to 'step on it'. The road's a bit wet, and you're not that familiar with this stretch.

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Now... how good a driver are you really?

So, you've passed your driving test and the last thing you want to think about is another test. You're a pretty good driver and you definitely don't need L plates any more but you know that sometimes you end up in situations where your driving skills are challenged. This is when *MOMENTUM* steps in.

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