

Northern Ireland Older Driver casualties, 2005-2014

This bespoke analysis was commissioned by Road Safety and Vehicle Regulation division, DFI. The purpose of the research is to review collision data in relation to older drivers and identify any emerging issues in relation to the number of such drivers killed or seriously injured on our roads.

Bespoke Analysis

Analysis, Statistics & Research Branch
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INTRODUCTION

This report focuses primarily on elderly drivers - those aged 70 and over. The road safety of older road users is, to a large extent, affected by the following two factors: physical vulnerability on one hand and functional limitations on the other. It is often claimed that elderly drivers have an increased collision risk due to different impairments in functional abilities.

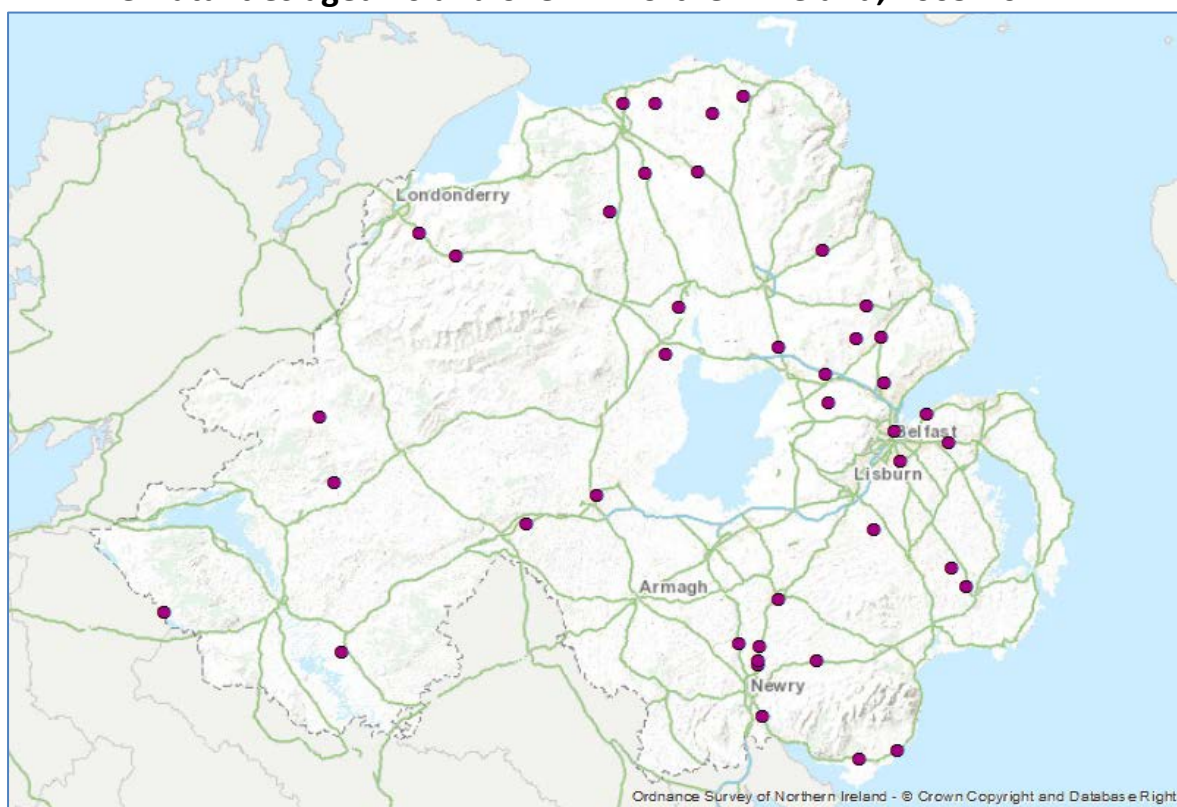
Ordinary driving licences are subject to renewal every 10 years (unless medically restricted) until the age of 70, after which it is a legal requirement to renew your licence every three years. This analysis examines whether older drivers are at greater risk on our roads and also gains a better understanding of where responsibility lies for fatal and serious collisions and the reasons for such collisions. This report will examine the data by various driver age groupings; mainly 17-24yrs, 25-59yrs and those aged 60 and over (with a particular focus within this on those aged 70 and over).

Headline statistics – Drivers of motor vehicles

(Drivers of motor vehicles: Drivers of hackneys, cars, motor caravans, LGVs, HGVs, cars used as taxis, minibuses and buses)

There have been 358 drivers killed on Northern Ireland roads between 2005 and 2014, 40 per cent of all road users killed. Drivers aged 70 and over accounted for 11 per cent (41) of all drivers killed during this period. The map below shows the location of driver fatalities aged 70+. Although there is no evidence of clustering, there would appear to be a greater prevalence of fatalities in the east as opposed to the west.

Driver fatalities aged 70 and over in Northern Ireland, 2005-2014



Source: PSNI Road Traffic Collision statistics, 2005-2014

Driver fatalities 2005 - 2014

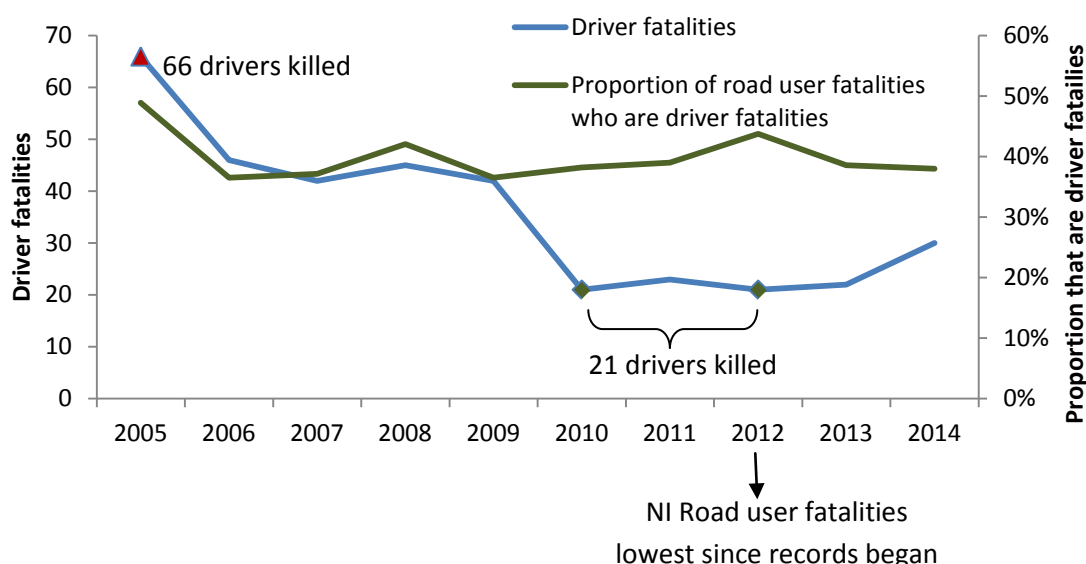
The highest number of driver fatalities was reported in 2005 (66) and the lowest (21) in both 2010 and 2012. There was a notable decrease in all road user fatalities in 2010 and this fall is reflected in the number of driver fatalities.

Table 1: Road User fatalities and proportion of all road user fatalities that are drivers, 2005-2014

Fatalities	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-2014
All Road Users	135	126	113	107	115	55	59	48	57	79	894
Drivers (number)	66	46	42	45	42	21	23	21	22	30	358
Drivers (proportion)	49%	37%	37%	42%	37%	38%	39%	44%	39%	38%	40%

Source: PSNI Road Traffic Collision statistics, 2005-2014

Figure 1: Drivers killed and drivers killed as a proportion of all road users, 2005-2014



There were 3,744 drivers seriously injured over the 10 year period 2005 to 2014, this equated to 40 per cent of all road users seriously injured.

Table 2: Road User Serious Injuries, and proportion of all road user SIs that are drivers, 2005-2014

Serious injuries	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-2014
All Road Users	1,073	1,211	1,097	990	1035	892	825	795	720	710	9,348
Drivers (number)	451	526	478	417	417	332	295	294	271	263	3,744
Drivers (proportion)	42%	43%	44%	42%	40%	37%	36%	37%	38%	37%	40%

Source: PSNI Road Traffic Collision statistics

Elderly drivers (aged 70 years and over)

Eleven per cent of all drivers killed over the ten year period 2005 to 2014 were aged 70 years or over (41 out of 358).

Table 3: Older driver fatalities by age group (70 and over)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-2014
70-74	1	0	1	2	0	0	2	0	1	0	7
75-79	1	1	3	3	2	0	1	1	2	0	14
80-84	2	0	1	1	0	2	0	2	0	6	14
85+	1	0	0	1	2	1	0	1	0	0	6
Total	5	1	5	7	4	3	3	4	3	6	41

Source: PSNI Road Traffic Collision statistics

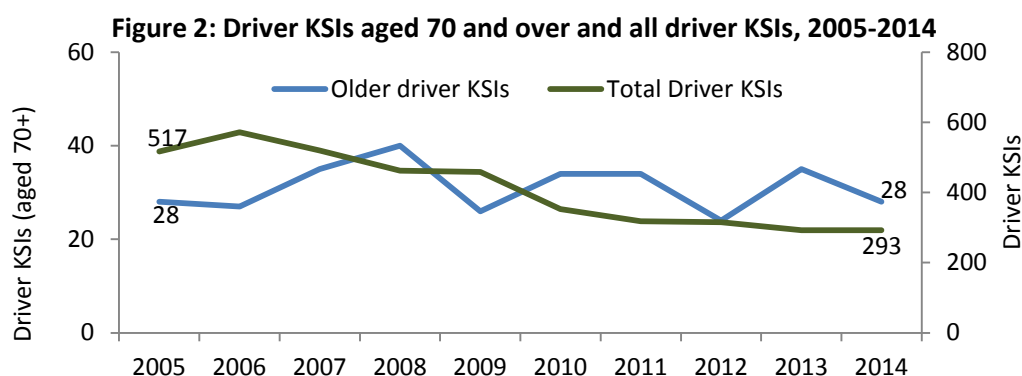
In total, 270 older drivers were seriously injured from 2005 to 2014; seven per cent of all drivers seriously injured from 2005 to 2014.

Table 4: Driver serious injuries by age group (70 and over)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2005-2014
70-74	10	8	14	11	10	7	6	8	15	9	98
75-79	4	8	12	11	6	10	10	4	7	8	80
80-84	6	6	3	10	4	9	7	4	4	5	58
85+	3	4	1	1	2	5	8	4	6	0	34
Total	23	26	30	33	22	31	31	20	32	22	270

Source: PSNI Road Traffic Collision statistics

In total, there were 311 elderly driver KSIs between 2005 and 2014, eight per cent of all driver KSIs. Although the number of all driver KSIs has noticeably declined since 2005 the number of elderly driver KSIs has not followed this trend. It appears to fluctuate annually, with some short-lived increases, and it is noted that the number reported back in 2005 (28) is equal to the number reported in 2014.



Source: PSNI Road Traffic Collision statistics

It can be seen during the period 2005 to 2014, drivers aged 70 and over accounted for a greater proportion of the driver fatalities than serious injuries with the exception of 2006, where the proportion of elderly driver fatalities was only 2 per cent. In addition, although the figures fluctuate year-on-year, it appears that the general trend shows the proportion of driver fatalities attributed to those aged 70 and over is increasing over time – in 2005-2009, 9 per cent of driver fatalities were aged 70+; in 2010-2014 the equivalent figure was 16 per cent. The increase is not as evident for driver SIs; however between 2005 and 2009 the proportion attributed to those aged 70 and over was 6 per cent, which is still lower than the average for the following five years (9 per cent). This emphasises the point made previously that while driver KSIs have declined since 2005, elderly driver KSIs have not seen an equivalent decline, meaning the overall proportion for those 70 and over appears to increase.

Fig 3: Proportion of driver fatalities by age group, 70+ and others, 2005-2014

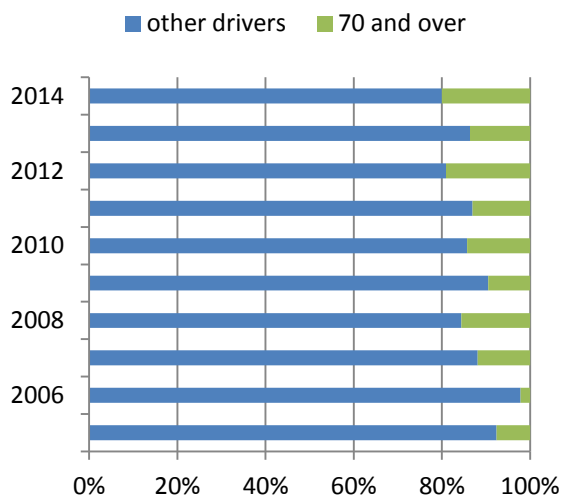
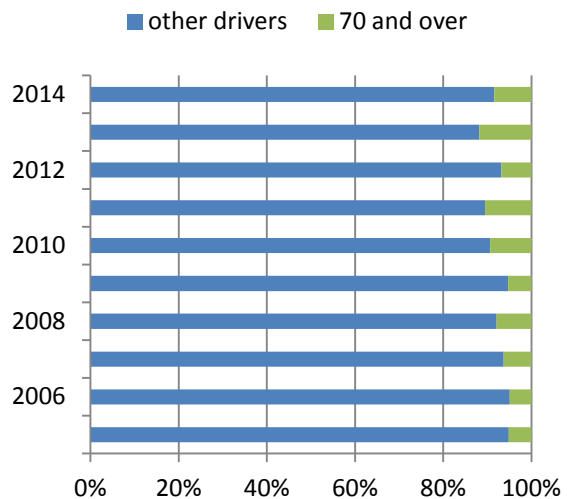


Fig 4: Proportion of driver SIs by age group, 70+ and others, 2005-2014

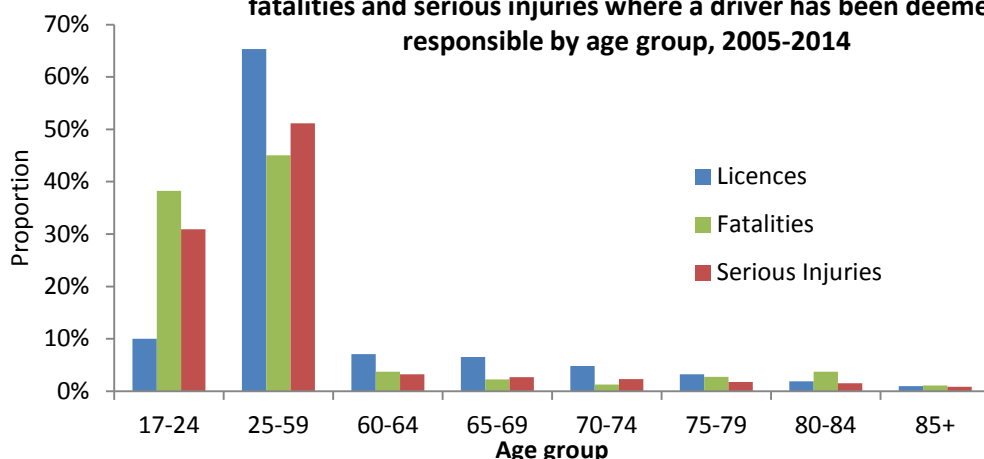


Source: PSNI Road Traffic Collision statistics

Responsibility

In total, a driver was deemed responsible for 617 fatalities and 6,490 serious injuries during 2005 to 2014. Figure 5 overleaf shows, when comparing licence data to the proportion of fatalities where a driver was deemed responsible, the most overrepresented group, and therefore the age-group most at risk to cause a collision, is 17 to 24 year old drivers. They hold 10 per cent of full licences but were responsible for 38 per cent of all fatalities and 31 per cent of serious injuries where a driver was deemed responsible. This assumes, however, that licence holders across the age groups undertake (on average) an equal amount of driving.

Figure 5: Proportion of driver licences* held against the proportion of fatalities and serious injuries where a driver has been deemed responsible by age group, 2005-2014



Source: PSNI Road Traffic Collision statistics, NIDLS, DVA Driver Licensing

*licence data is based on a lift provided from DVA on 30/09/15

Note: More than one driver can be deemed responsible for a collision

Table 5: Number of fatalities, serious injuries where a driver has been deemed responsible by driver age group, 2005-2014 and number of full licences* by age group

Age group	Fatalities		Serious injuries		Full licences held	
	number	%	number	%	number	%
unknown	13	2	420	6	0	0
17-24	236	38	2,008	31	108,181	10
25-59	278	45	3,318	51	702,500	65
60-64	23	4	210	3	76,482	7
65-69	14	2	175	3	70,137	7
70-74	8	1	153	2	52,203	5
75-79	17	3	116	2	35,116	3
80-84	23	4	100	2	20,648	2
85 and over	7	1	54	1	10,372	1
Total	617	100	6,490	100	1,075,639	100

Source: PSNI Road Traffic Collision statistics, NIDLS, DVA Driver Licensing

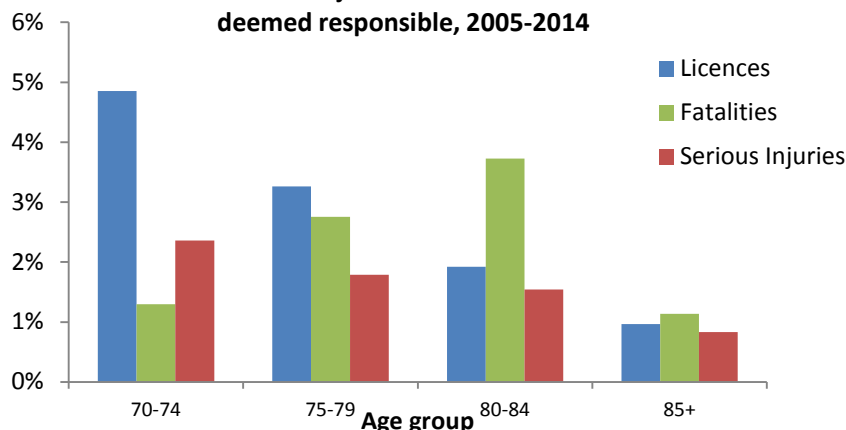
Unknown: Age of driver unknown, includes a small number where driver under 17 years old

*licence data is based on an extract provided from DVA on 30/09/15

Note: Totals may not add as more than one driver can be deemed responsible for a collision

Focusing on older drivers, from 2005 to 2014 a driver aged 70 and over was responsible for nine per cent of all fatalities (55) and seven per cent (423) of all serious injuries where a driver was deemed responsible for the collision. By enhancing Figure 5 to select only drivers aged 70 and over, Figure 6 overleaf shows there is a difference in the four age groupings when comparing licence data to the proportion of casualties where the driver has been deemed responsible. Although the numbers are relatively small, Figure 6 demonstrates that drivers aged 70-74 years are less likely to be deemed responsible for a fatality or serious injury, given the proportion of licences which they hold, than the other older age groups. In particular, the age groups for 80 and over were deemed responsible for a greater proportion of fatalities than full licences held; however, the proportion of serious injuries is slightly lower.

Figure 6: Proportion of drivers licences* held against the proportion of fatalities and serious injuries where an older driver has been deemed responsible, 2005-2014



Source: PSNI Road Traffic Collision statistics, NIDLS, DVA Driver Licensing
 *licence data is based on a lift provided from DVA on 30/09/15

Table 6 shows drivers aged 60-64 were deemed responsible for the lowest proportion of KSI collisions in which they were involved (40 per cent). The age groups that reported the highest proportion of responsibility compared to involvement were the younger age group (17-24 years) at 67 per cent and the older age groups (80-84 and 85+), 71 per cent and 72 per cent respectively. However, drivers aged 80 and over were only responsible in three per cent of collisions where a driver was deemed responsible, much fewer than their younger counterparts aged 17-24 (as demonstrated in Table: 6).

Table 6: Number of KSI collisions where a driver is involved and those where they have been deemed responsible

	Unknown/ Under 16	17-24	25-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Involved	622	2,398	5,280	480	340	259	200	139	69	7,858
Responsible	379	1,616	2,773	194	158	131	113	99	50	5,461
Proportion responsible	61%	67%	53%	40%	46%	51%	57%	71%	72%	69%

Source: PSNI Road Traffic Collision statistics

Note: Totals may not add as more than one driver can be involved in a collision

Distance Travelled, 2012-2014

Overall, the average distance travelled by male car drivers was greater than females, males travelled 1,014 miles further during 2012 to 2014. This difference is more obvious in the older age groups (60 to 69 and 70+) where female drivers distance averaged less than three fifths (57 per cent) of the miles travelled by male car drivers. See Table 7 overleaf.

Table 7: Average distance travelled by car driver mode of travel¹ by age group and gender 2012-2014 - Persons aged 17+ who hold a full car driving licence²

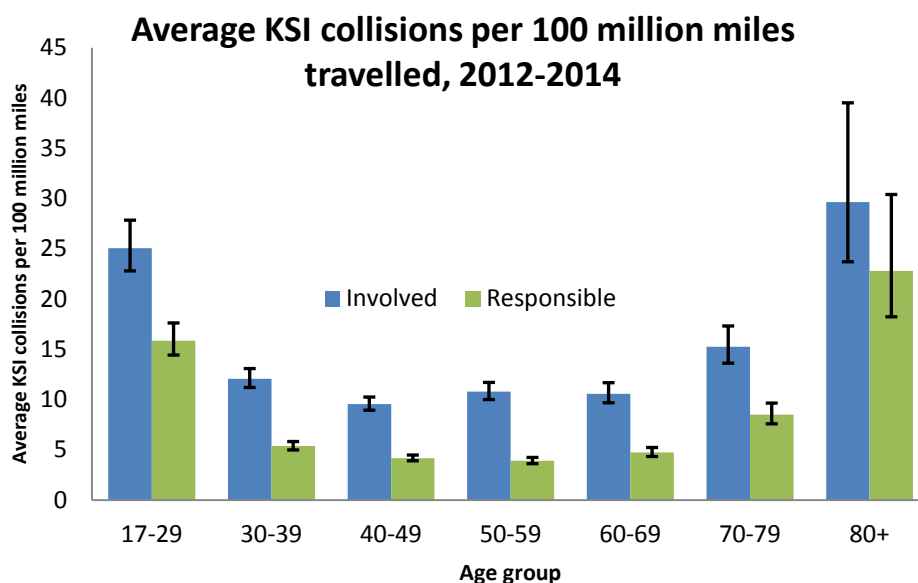
	17-29	30-39	40-49	50-59	60-69	70+	All aged 17+
Male	5,199	5,817	7,257	6,571	5,445	3,786	5,823
Female	5,089	6,069	5,928	4,849	3,083	2,175	4,809
All persons	5,140	5,958	6,567	5,703	4,357	3,048	5,307

Source: Travel Survey for Northern Ireland, 2012-2014

¹ Mode of travel is the form of transport used for a stage of a journey. For example, if a journey consisted of 2 stages, a 10 mile drive in a car to a train station Park 'n' Ride followed by a 15 mile train journey, 10 miles would be assigned to the "car driver" mode of travel and 15 miles to the "NI Railways" mode of travel.

² Analysis includes only persons aged 17+ who held a full car driving licence.

It is often claimed that elderly drivers have an increased collision risk on the roads; this claim is supported by the driving exposure analysis in figure 7. The data show that both younger drivers (aged 17-29) and older drivers (aged 80+) are a higher risk of being in a KSI collision per miles driven than any other age groups. Collision responsibility was also highest for these two groups, and in fact, the oldest age category (80+) are the only group to report no significant difference between the rate of being involved in a collision and collision responsibility (i.e. there is no proportional difference between involvement and responsibility for this age group). Those drivers aged 70-79 are at a slightly increased risk of collision; their risk is higher than for those aged 30-69, however is lower than the 17-29 and 80+ age groups.



Note: Error bars calculated at 95% confidence interval

Source: PSNI Road Traffic Collision statistics, Travel Survey for Northern Ireland

Note: In order to make data comparable with Travel Survey for NI the above age groups have been used.

[Aged 70 and over only, 2012-2014](#)

Concentrating on those aged 70 and over, the Travel Survey for Northern Ireland shows that female car drivers travelled less distance on average than their male equivalents (males travelled on average 1,611 more miles than females) and this is also reflected in the proportion of driver KSIs.

Female drivers accounted for 43 per cent, and males 57 per cent, of all drivers who were killed or seriously injured. It is also interesting to note the split of driver licences by gender for those aged 70 years and over was 43 per cent female and 57 per cent male, the same proportion as driver KSIs, although there is no way of determining if all those that have a full licence do drive.

Figure 8: Driver KSIs aged 70 yrs and over by gender, 2012-2014

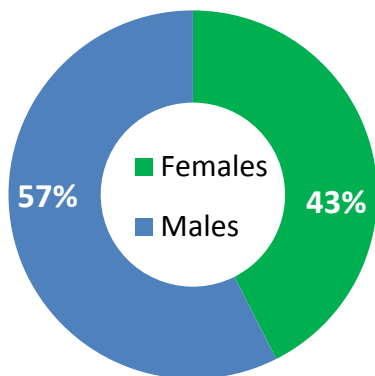
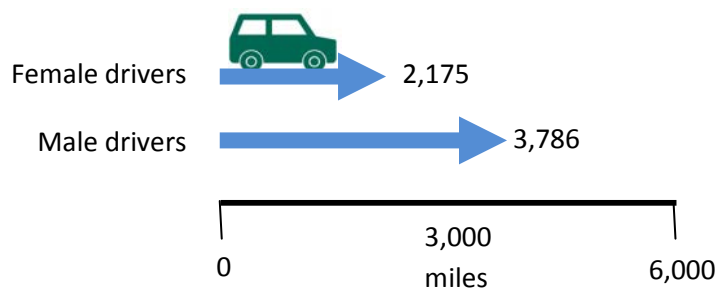


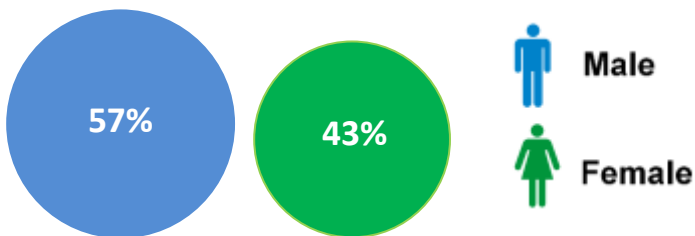
Figure 9: How far do they drive?

Drivers aged 70 and over - On average females drive fewer miles than male drivers



Source: PSNI Road Traffic Collision statistics 2012-2014, Travel Survey for Northern Ireland, 2012-2014

Figure 10: Licence data aged 70 years and over by gender

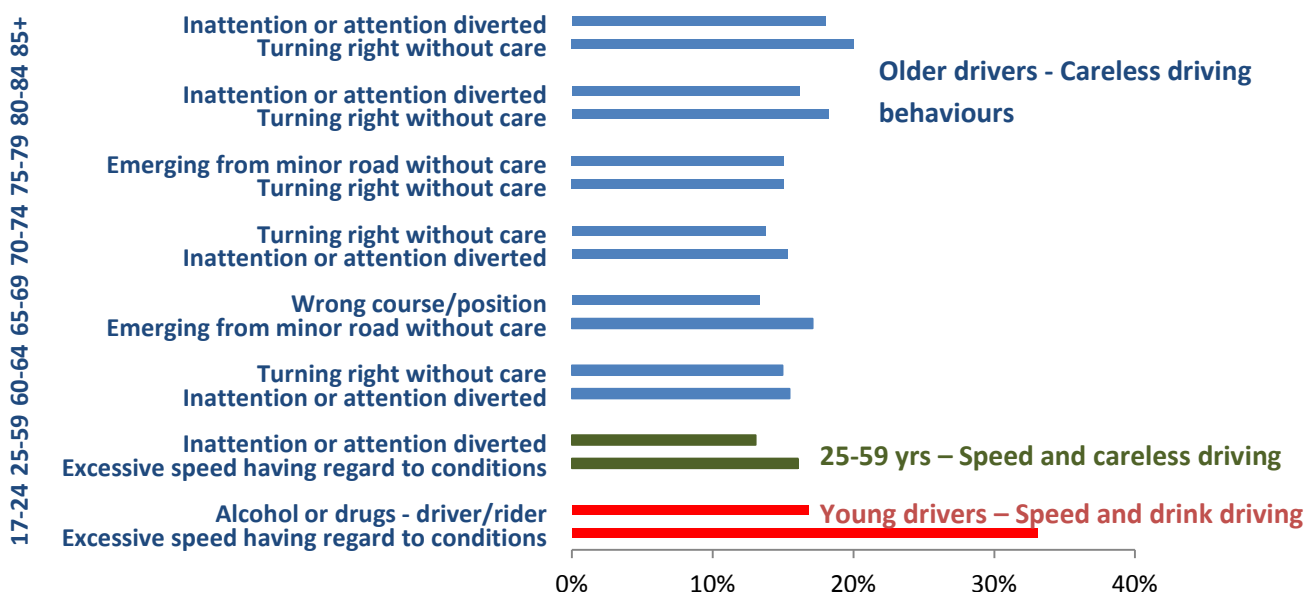


Causation

Figure 11 overleaf demonstrates that the top two causation factors of a collision vary depending on the age of the driver¹; while younger drivers' collisions are more likely to be caused by speed and drink driving, older driver collisions are more likely to be attributed to careless driving. In particular, inattention and turning right at junctions appear to represent a high collision risk for elderly drivers. It is recognised that the group '25 to 59 years' covers a wider age range, however, for this set of drivers deemed responsible for a collision, the top two factors were speed and careless driving related.

¹ <http://roadsafetyfoundation.org/media/33073/modsfl-single-page-printable-version.pdf>

Figure 11: Proportion of KSI collisions by top two causation factors where a driver is deemed responsible by driver age, 2005-2014



Day of Week/Time of Day

The greatest number of driver KSIs occurred on a Saturday followed by Monday then Friday, the total for these three days accounted for 15 per cent of driver KSI casualties. The highest number of driver KSIs were reported between 4 and 6pm, this would coincide with those commuting home from work. There were a total of 122 driver KSIs reported between 4 and 6pm on a Friday, this was the most vulnerable time period for driver KSIs.

Figure 12: All drivers killed or seriously injured by time of day and day of week, 2005-2014

Source: PSNI Road Traffic Collision statistics

	0001-0200	0201-0400	0401-0600	0601-0800	0801-1000	1001-1200	1201-1400	1401-1600	1601-1800	1801-2000	2001-2200	2201-2400	Total
MON	39	16	12	60	69	61	66	72	79	63	49	35	621
TUE	20	15	10	49	88	42	49	62	87	50	43	29	544
WED	20	12	5	41	67	50	51	61	79	83	61	30	560
THU	18	11	16	51	76	41	59	55	86	70	45	32	560
FRI	19	10	10	34	70	39	63	76	122	51	69	57	620
SAT	47	44	22	32	42	63	79	70	84	53	61	37	634
SUN	54	57	41	27	25	54	57	50	63	49	48	38	563
Total	217	165	116	294	437	350	424	446	600	419	376	258	4,102

Key

Hours highlighted in light blue have a lower number of casualties

Hours highlighted in dark blue have a higher number of casualties

The peak time for driver KSI casualties did not differ when focusing on those drivers aged 70 and over; the highest number of driver KSIs occurred between 4 and 6pm on a Friday. However, the day that reported the highest number of driver casualties was Monday (17 per cent) followed by Thursday (17 per cent). The most vulnerable time of day for elderly drivers was afternoon (between 2 and 4pm).

Figure 13: Older drivers (aged 70 and over) killed or seriously injured by time of day and day of week, 2005-2014

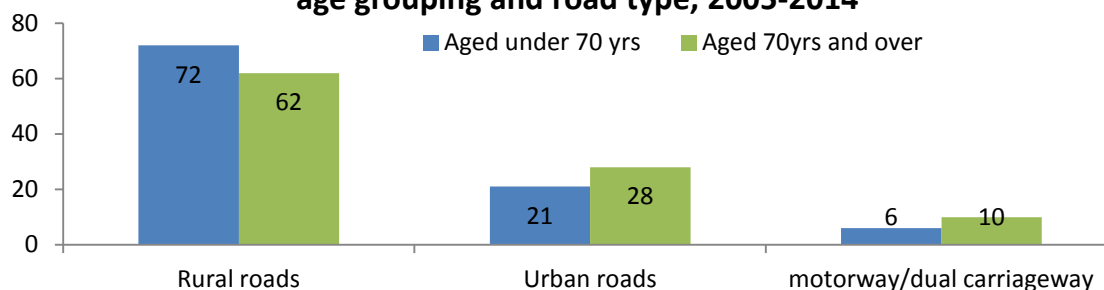
	0001-0200	0201-0400	0401-0600	0601-0800	0801-1000	1001-1200	1201-1400	1401-1600	1601-1800	1801-2000	2001-2200	2201-2400	Total
MON	1	0	0	1	5	8	14	13	4	3	2	2	53
TUE	0	1	0	2	5	8	8	6	6	2	5	0	43
WED	0	0	0	0	2	9	5	11	4	4	3	2	40
THU	0	0	0	1	3	6	13	12	8	4	5	0	52
FRI	0	1	0	0	1	7	8	10	15	2	1	1	46
SAT	0	0	0	2	2	8	5	9	8	3	1	0	38
SUN	0	1	0	0	1	7	10	6	7	4	3	0	39
Total	1	3	0	6	19	53	63	67	52	22	20	5	311

Source: PSNI Road Traffic Collision statistics

Location

Over three fifths (62 per cent) of drivers aged 70 and over were killed or seriously injured on rural roads, 28 per cent on urban roads and 10 per cent on motorways or dual carriageways. This compared to 72 per cent - rural, 21 per cent - urban and 6 per cent - motorway/dual carriageway for those aged under 70 years. Comparing these two age groups it is noticeable the proportion aged 70+ killed or seriously injured on urban roads was greater than those aged under 70.

Figure 14: Proportion of drivers killed or seriously injured by age grouping and road type, 2005-2014



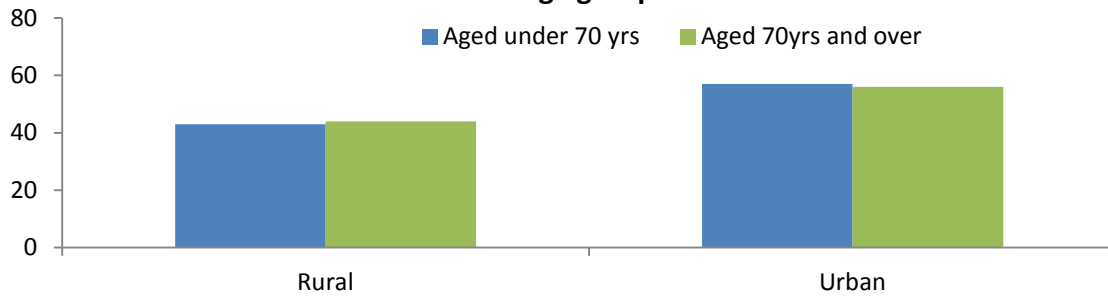
Source: PSNI Road Traffic Collision statistics

It was decided to consider driver licence data split by those residing in urban/rural areas for the age groups 70+ and under 70 years. Figure 15 demonstrates the proportion living in urban and rural areas holding a driving licence is similar across these two age groups. Although the location a

collision occurs is not necessarily where you reside, this could indicate that older drivers are more at risk on urban roads compared to those aged under 70. The top two causation factors on an urban road where a 70+ driver has been killed or seriously injured were 'Inattention or attention diverted' and 'Physical/mental illness or injury - driver/rider' while for a driver aged under 70 these were 'Excessive speed having regard to conditions' and 'Alcohol or drugs - driver/rider'.

Proportion of Licences held by those residing in urban/rural areas by age (under 70 and 70+), 2015

Figure 15: Proportion of licences held by urban/rural residence and age group

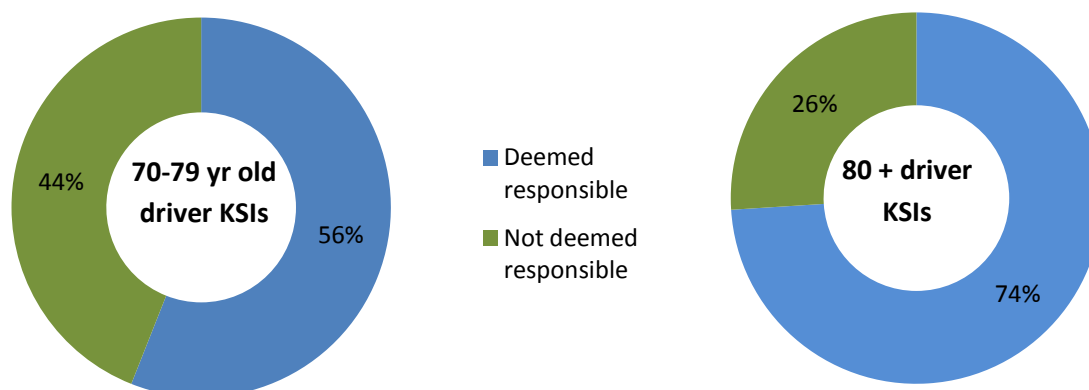


Source: licence data is based on an extract provided from DVA on 31/5/16

Urban/rural split by driver KSI and responsibility for collision, 2005-2014

There were 199 drivers aged 70 to 79 years killed or seriously injured on Northern Ireland roads between 2005 and 2014, the driver casualty was deemed responsible for 60 per cent of these, the comparable figures for 80+ drivers show there were 112 80+ driver KSIs and the driver casualty was deemed responsible for a higher proportion, 75 per cent. When reporting on different road types it was noted there was a greater difference between the two age groups on rural roads. When a collision occurred on a rural road and an 80+ driver had been killed or seriously injured the driver casualty was deemed responsible for almost three quarters (74 percent) of these casualties while where a 70-79 year old driver was killed or seriously injured the driver was deemed responsible for 56 per cent of these casualties. Figure 16 below demonstrates that driver casualty responsibility differs between the 70-79 and 80+ year old drivers on rural roads.

Figure 16: Proportion of responsibility of drivers killed or seriously injured on rural roads by age group, 2005-2014



Source: PSNI Road Traffic Collision statistics

2015 Position

There were 74 road user fatalities and 711 serious injuries on Northern Ireland roads in 2015. Drivers of motor vehicles accounted for 31 fatalities (42 per cent) and 254 serious injuries (36 per cent), they were the single largest casualty class in 2015, accounting for the greatest proportion (36 per cent) of all people killed or seriously injured. This is the highest number of driver fatalities reported since 2009, however, fewer drivers were seriously injured in 2015 than any previous calendar year since electronic data was made available in 1986.

In 2015, drivers aged 70 years and over accounted for 13 per cent (4) of driver fatalities and 9 per cent (23) of serious injuries.

Conclusion

Although the number of all driver KSIs has noticeably declined since 2005 the number of elderly (aged 70 and over) driver KSIs appears to fluctuate annually and it is noted that the number reported in 2005 (28) is equal to the number reported in 2014, indicating that elderly driver KSIs have not experienced a similar decline. Elderly drivers accounted for 393 (seven per cent) of the collisions where a driver was deemed responsible.

One of the main conclusions that can be drawn from the data, as evidenced by the number of KSI collisions per 100 million miles driven (Figure 7) is that the risk of being in a fatal or serious collision is markedly greater for those aged 80 and over and younger drivers aged 17-29 than for any other age groups. Responsibility was a particular factor for those aged 80 years and over, who were deemed responsible for the greatest proportion of collisions per 100 million miles driven in which they were involved. Therefore, although older drivers (80+) are only involved in three per cent of KSI collisions where a driver is involved, they are more likely to have been deemed responsible for the collision than is the case for their younger counterparts. Research referenced in the recent Road

Safety Foundation publication, 'Supporting Safe Driving into Old Age'² would concur with this finding. It quotes findings from Dutch research, 'the reduction in the number of drivers involved in injury crashes with increasing age is clear but so too is the relatively high number of drivers who are responsible in the oldest age group (and the youngest)'.³ Those drivers aged 70-79 are at a slightly increased risk of collision; their risk is higher than for those aged 30-69, however is still notably lower than the 17-29 and 80+ age groups. There is no statistically significant difference in risk across the 30-39 to 60-69 age groups.

The risk of older drivers in collision responsibility is further evidenced by their overrepresentation in the comparison of collision responsibility and licences held. Although, young drivers (17 to 24) are the most risky driver age group on the roads according to these data (Figure 5), data would also infer that drivers aged 70 and over are also at an increased risk and in particular, those aged 80 and over are a greater risk than those aged 70 to 79: In the same comparison of collision responsibility and licences held, we can see that as age increases beyond 70, drivers are responsible for greater proportions of KSI collisions; drivers aged 80 and over were overrepresented, and therefore are deemed a higher risk group. However, it is important to note that the fatality numbers are low for these older age groups. In addition, it may be the case that people hold a driving licence but no longer use it. This is more likely the case for older drivers, and for this reason, conclusions can't be drawn from these data alone. Rather, the comparison of KSIs per 100 million miles driven is a much better indicator of risk, and data relating to licences held then used to supplement it.

Collisions by age show two different developments in causation factors; speeding or driving under the influence of alcohol decline with age, whereas offences due to driving carelessness increase. In particular, inattention and junctions appear to represent a high collision risk for elderly drivers.

Urban roads proved more hazardous for 70 and over drivers compared to those drivers aged below 70, as 28 per cent of drivers aged over 70 were killed or seriously injured on urban roads compared to 21 per cent of those drivers aged below 70. This is further demonstrated in the map at the beginning of the report, as there appears to be a greater prevalence of 70+ driver fatalities in the urban east of the province as opposed to the more rural areas in the west. When examining the split of older driver KSIs by road type, it was found drivers aged 80 years and over were held responsible for a higher proportion of fatalities and serious injuries than those aged 70-79 years on rural roads.

Overall, the data would suggest that the risk rate to drivers per mile driven rises more steeply after 80+ and they are a significantly higher risk group than those driver aged 70-79. Also, where the 70-79 data could be broken down further, such as that in Figure 6 and Table 6, it would infer as with other research², that drivers aged 70-74 pose even less of a driver risk than older age groups.

² <http://roadsafetyfoundation.org/media/33073/modsfl-single-page-printable-version.pdf>

³ http://www.swov.nl/rapport/Proefschriften/Ragnhild_Davidse.pdf