Ministry of Transport
TE MANATŪ WAKA

Risk on the road

Household Travel Survey

v1.0 Nov 2008

Highlights

- Road crash statistics by themselves don't necessarily tell us who is most at risk on the road because they don't take into account the amount of travel.
- The amount of travel can be combined with crash statistics to compare the **risk** of death and injury for different age groups or different modes of travel.
- The riskiest travel mode is motorcycling.
- The least risky travel mode is being a bus passenger, followed by walking.
- 15 – 19 year old drivers are at the highest risk of being involved in a motor vehicle crash.
- 15 – 19 year old drivers are also at the highest risk for all drivers, of being killed or injured in a motor vehicle crash.
- 15 – 19 year old passengers are at highest risk for all passengers, of being killed or injured in a motor vehicle crash.
- 5 – 9 year old pedestrians and over 80 year old pedestrians have the highest risk of being killed or injured in a motor vehicle crash but these are fragile age groups who are more likely to be injured or killed when hit.
- Cyclist risk varies depending on whether you consider deaths/injuries per 100 million km travelled or per million hours spent travelling. The risk is much higher relative to other modes per distance travelled than by time travelled.
- When looking at risk by age patterns you have to take into account that children and those over 70 years old are more fragile when hit. They are more likely to be killed or injured in a crash, but this does not necessarily mean they are more likely to get into a situation where they are involved in a crash.
- Males generally have a slightly higher risk of being killed or injured in motor vehicle crashes, as both drivers or passengers, especially in the 15 – 30 year old age groups.

Meaning of risk

Road crash statistics by themselves don't necessarily tell us who is most at risk on the road since they don't take into account the amount of driving, walking, riding, etc. By merely considering the total number of crashes that drivers have, it could be concluded that drivers less than 15 years old are very safe on the road because

there are very few crashes involving them. In fact, this is really a result of there being only a small number of this age group actually driving as it is illegal for them to be doing so.

In the following fact sheet, we make use of information about the amount of travel being done by various groups combined with crash statistics in order to see who is at greater or lesser risk given the amount of travel they do.

Risk can be expressed as road crashes or injuries occurring per km travelled or per hour of travel, or even per road crossed in the case of pedestrians.

There is a complicating factor when comparing risk factors and that is the fragility of the road user. For example, an 80-year-old male is about four times as likely to die as a 20-year-old male if they were involved in the same crash. This has nothing to do with the capability or behaviour of the drivers involved; rather, their body is less likely to stand up to the forces of impact and more likely to be injured or killed, and as a consequence are more likely to be involved in injury crashes.

The travel information is obtained from the New Zealand Household Travel Survey. The New Zealand Household Travel Survey is an ongoing survey of household travel conducted for the Ministry of Transport. Each year, people in over 2 000 **households** throughout New Zealand are invited to participate in the survey by recording all their **travel** over a two-day period. Each person in the household is then interviewed about their travel and is also asked about their alcohol consumption, recent accidents and other travel-related information.

The crash information is taken from the Crash Analysis System (CAS). As this data set only deals with crashes involving motor vehicles, unless explicitly stated numbers presented here will only deal with crashes involving motor vehicles. While this is fairly obvious for drivers and passengers, this does mean that cyclist risk is underestimated as the CAS data does not include crashes involving a single cyclist falling off or hitting an object which is not a motor vehicle, a cyclist hitting a pedestrian or vice versa, or a cyclist hitting another cyclist.

Risk by mode travelled

Initially we want to see how risky different modes of transport are by the time spent travelling by that mode and the distance travelled in that mode. To do this we focus on the most common modes for personal travel:

- motorcycling (including power cycles)
- cycling
- driving a light 4 wheeled vehicle i.e. a car/station wagon/van/ute/4WD
- being a passenger in a light 4 wheeled vehicle
- walking (including skateboarding and other wheeled pedestrian activities)
- being a bus passenger

Figure 1: People killed or injured in motor vehicle crashes per million hours spent travelling, 2003-07 for all ages.

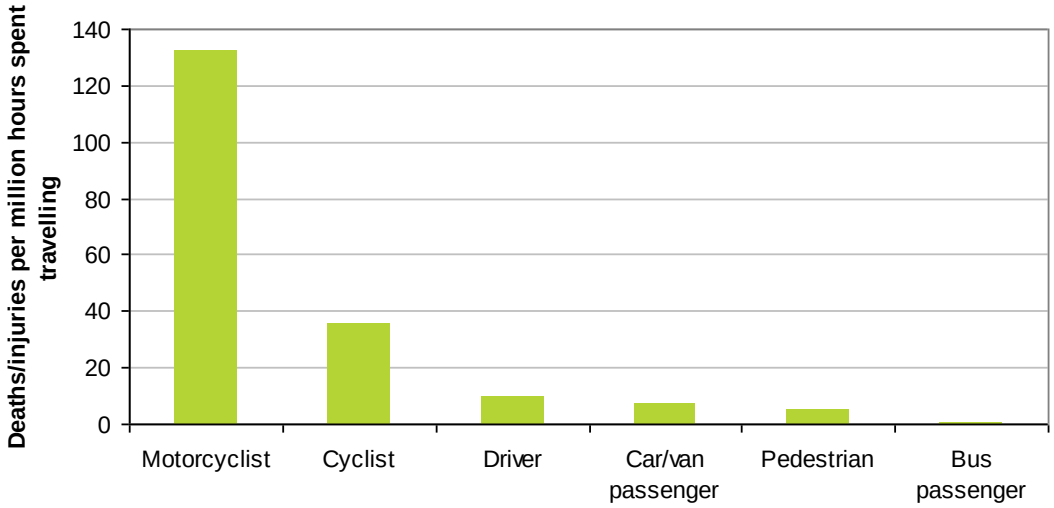


Figure 1 shows the number of people killed or injured in motor vehicle crashes per million hours spent travelling. This shows that motorcycling is the riskiest travel mode by time (132 deaths/injuries per million hours travelled), followed by cycling (36). Drivers of light 4 wheeled vehicles have a higher risk (10 deaths/injuries per million hours travelled) than passengers in light 4 wheeled vehicles (7), and the two safest travel methods are walking (5) and being a bus passenger (0.7).

Figure 2: People killed or injured in motor vehicle crashes per 100 million km travelled per year, 2003 – 2007 for all ages.

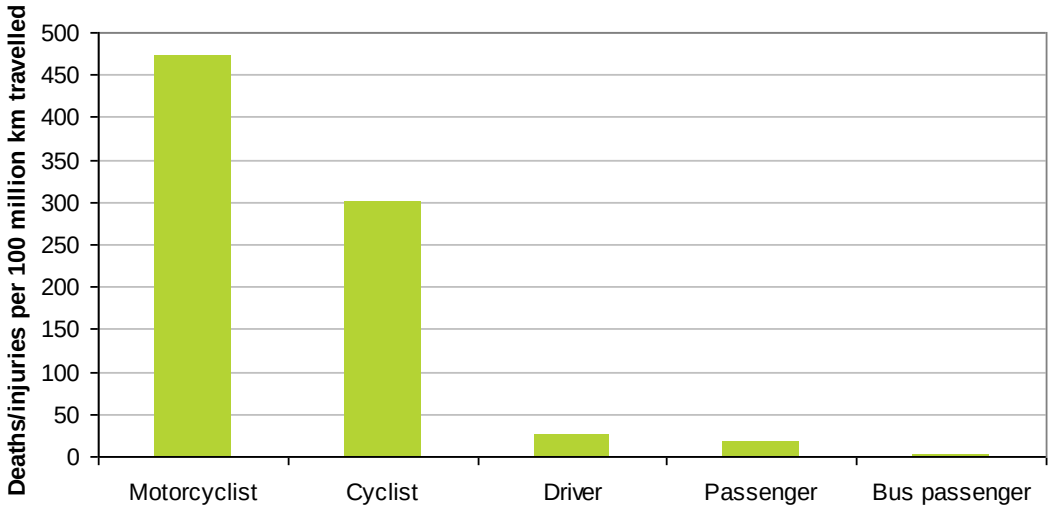


Figure 2 shows the number of people killed or injured in motor vehicle crashes per 100 million km travelled. The pattern is similar to the risk by time spent travelling in that motorcycling is still the most risky (473 deaths/injuries per 100 million km travelled), followed by cycling (300), driving a light 4 wheeled vehicle (27), being a passenger in a light 4 wheeled vehicle (18) and being a passenger in a bus (2.5). Currently the Travel Survey only records the time spent walking, and not the distance walked, so pedestrian risk by distance can't be easily studied at this point.

The major difference is that cycling has a much larger risk by distance (11 times the risk of driving), than by time (only 3.5 times larger than the risk by driving). This relates to the relative speeds involved in the mode of travel, as cyclists travel much more slowly than cars and other motor vehicles, so will travel a much smaller distance in the same time.

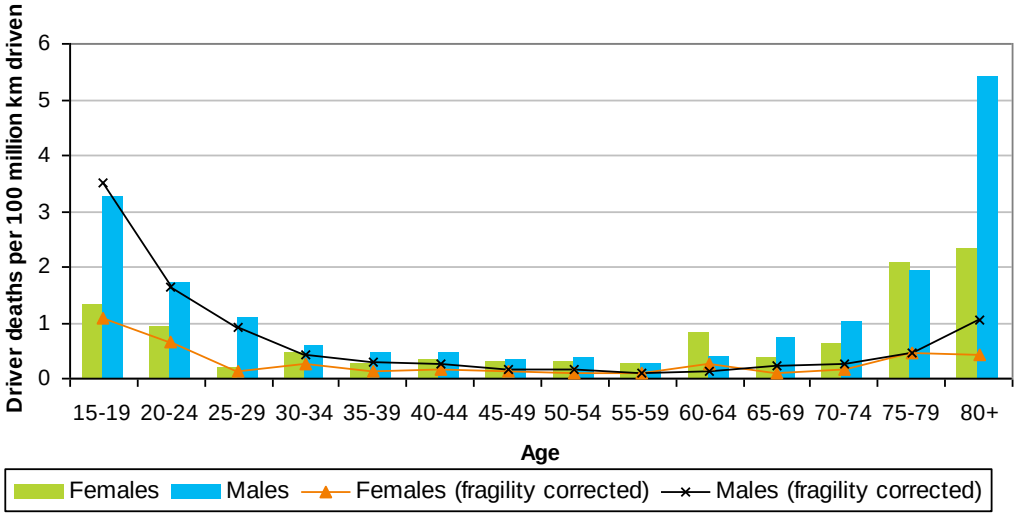
Comparison across age groups

When comparing risk across age groups, we need to consider two things, especially with respect to older age groups:

- Fragility
- How much travelling is done by a particular mode by the age group in question

In order to see the size of the effects of fragility on a risk curve, we need to look at drivers killed in crashes, as this is where these effects have been quantified (Evans, 2004). Figure 3 shows driver deaths per 100 million km travelled both with and without the fragility correction. While the fragility correction makes a relatively small difference up to age 60, after that point, the corrected risk is much lower per 100 million km travelled.

Figure 3: Driver deaths per 100 million km showing effect of fragility correction. Fragility correction from Evans (2004)[1].



Fragility correction normalised to 1 for 20 year old male (from relationship in Evans 2004)

Drivers

We will now look in more detail about the risks for specific types of road user, starting with the driver. For the purposes of this fact sheet, unless stated otherwise, we are concerned with drivers of light 4 wheel vehicles i.e. cars, station wagons, utes, vans and 4 wheel drives.

In this section we are looking at drivers involved in crashes. These drivers are not necessarily killed or injured themselves.

[1] "Traffic Safety" by Leonard Evans (2004)

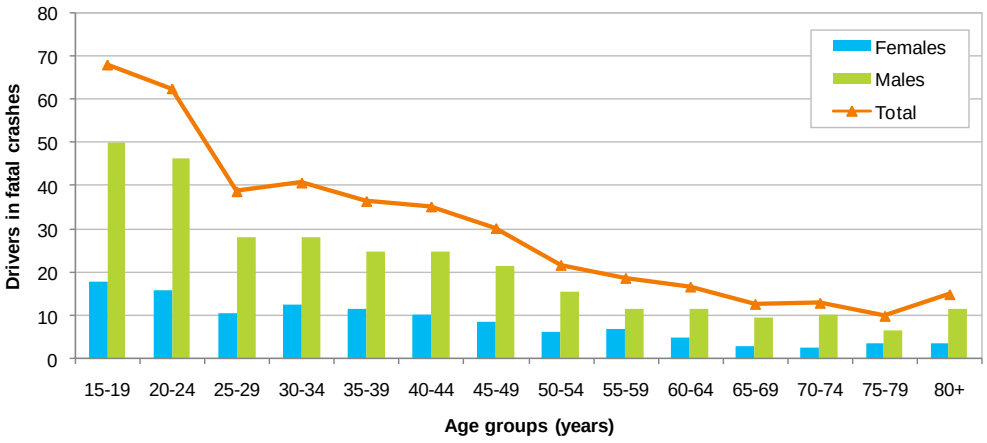
The driver information available is summarised in Table 1 and lists by age the total number of driver trips sampled, the total distance travelled per year, the total time spent travelling, the total number of drivers involved in fatal crashes per year and the total number of drivers involved in fatal or injury crashes per year. For context, in 2007, 203 drivers of motor vehicles were killed and 9 131 were injured[2].

Table 1: Drivers involved in motor vehicle crashes and the associated travel and risk.

Age group	Total number of driver trip legs sampled (over 4 years)	Total distance travelled per year (100 million km)	Total time travelled per year (million hours)	Drivers involved in fatal crashes per year	Drivers involved in fatal or injury crashes per year
15-19	*2 015*	11	31	68	2 395
20-24	*3 680*	21	62	63	2 263
25-29	*3 974*	24	67	39	1 479
30-34	*5 761*	31	83	41	1 418
35-39	*6 912*	33	89	37	1 376
40-44	*7 645*	46	115	35	1 341
45-49	*6 878*	36	92	30	1 114
50-54	*5 870*	32	82	22	845
55-59	*5 155*	31	75	19	693
60-64	*3 699*	16	43	17	511
65-69	*2 995*	10	30	13	377
70-74	*2 290*	7	22	13	306
75-79	*1 605*	4	13	10	264
80+	*1 008*	3	11	15	281

From Figure 4, the majority of drivers involved in fatal crashes are male with the largest number involved being between ages 15 and 24, with the numbers gradually decreasing as a function of age. When this is extended to examine drivers involved in fatal or injury crashes (Figure 5), the same trends are observed, with the majority of drivers being male, and the largest numbers coming from the 15 – 24 year old age group. However the number of female drivers involved in fatal and injury crashes increases compared to the number of male drivers involved.

Figure 4: Average number of light 4 wheel vehicle drivers involved in fatal crashes per year by age group.



[2] *Motor Vehicle Crashes in New Zealand 2007*.

Figure 5: Average number of light 4 wheel vehicle drivers involved in fatal or injury crashes per year by age group.

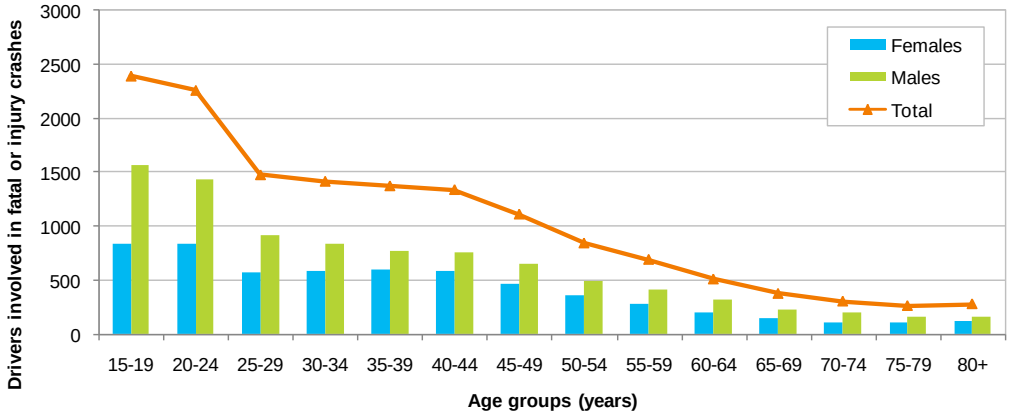
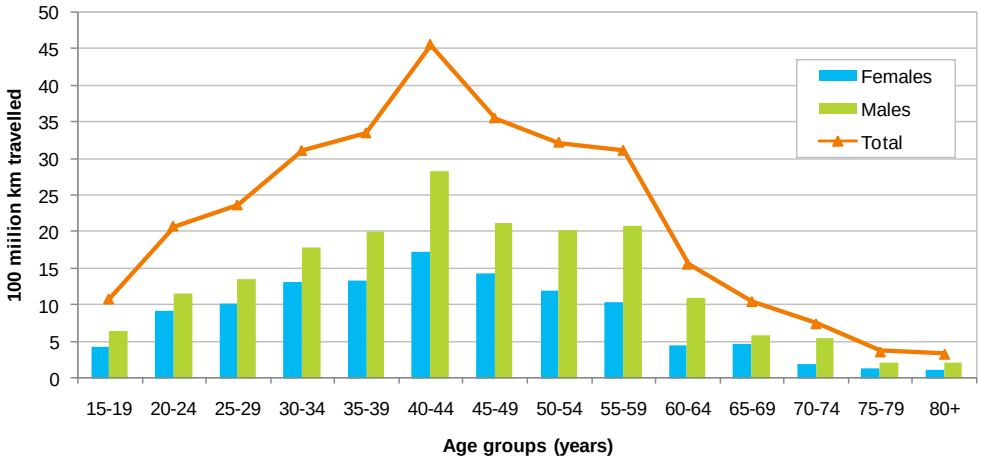


Figure 6: Average annual distance driven by light 4 wheel vehicle drivers, by age group.



Having examined the ages of drivers involved in crashes, we now look at the average distances driven by gender and age group (Figure 6). This shows quite a different shape with those between 30 and 60 years old driving the furthest, with a peak at ages 40 – 44 years old for both men and women.

We can then combine the data to see the risk of drivers being involved in fatal crashes per 100 million km travelled (Figure 7) and the risk of drivers being involved in fatal or injury crashes per km travelled (Figure 8). Both show highest risk of crash involvement per km travelled for those 15 – 19 years old for both males and females. Generally male drivers are more likely to be involved in fatal crashes than female drivers for a given age group. This is not the case for drivers involved in fatal or injury crashes, as women have a slightly higher risk for per km driven between ages 35 – 64 and over 70 years old then men.

Figure 7: Average number of light 4 wheel vehicle drivers involved in fatal crashes per year per 100 million km travelled (bars), and per 10 000 licence holders (lines), by age and gender.

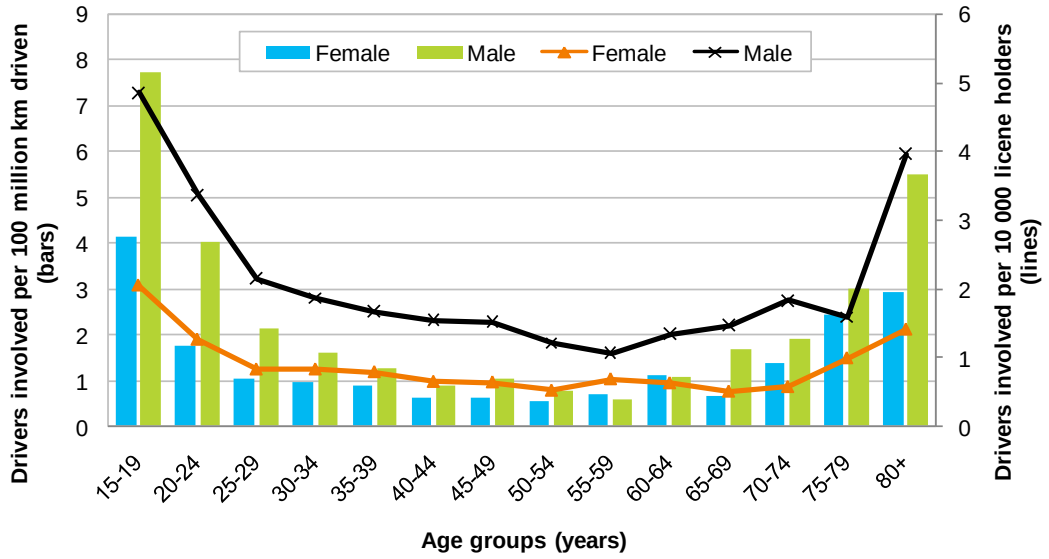
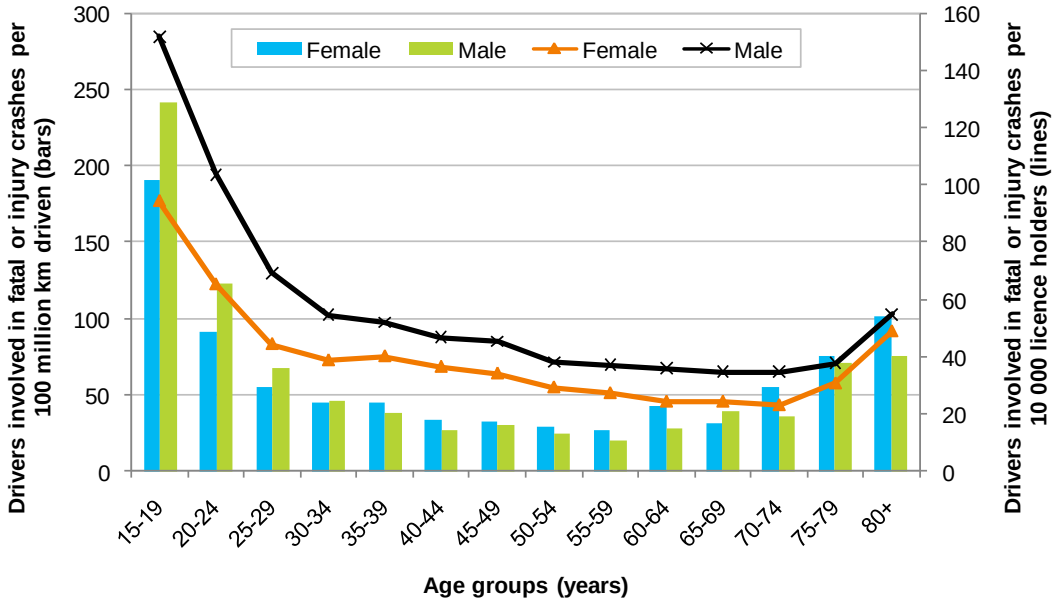


Figure 8: Average number of light 4 wheel vehicle drivers involved in fatal or injury crashes per 100 million km driven (bars) and per 10 000 licence holders (lines) by age and gender.

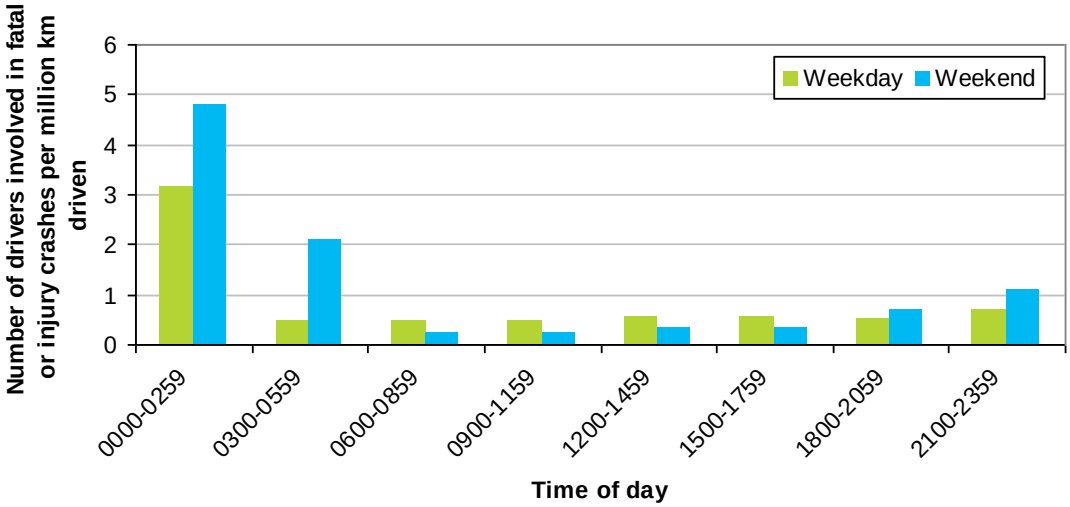


Fragility corrections can only be applied to people killed so cannot be applied to the earlier risk curves. We can look at the number of drivers involved in fatal crashes (Figure 7) or involved in fatal or injury crashes (Figure 8) per 10 000 licence holders in that age group. These graphs show that the younger aged drivers are far more likely to be involved in fatal or injury crashes than the older drivers given the numbers of people in each age group with licences.

Driver involvement risk by time of day and weekday/weekend

We can also examine the driver risk by time of day to see when drivers are most likely to be involved in a crash given the time spent driving (Figure 9).

Figure 9: Average number of light 4 wheel vehicle drivers involved in fatal or injury crashes per million km driven in the time interval concerned.



From this we can see that the riskiest times are between midnight and 6 am in the weekend. Results from the Travel Survey[3] show that on weekdays most driving is done between 6am and 6pm with distinct peaks during morning and evening commuting hours. On weekends most driving is done between 9am and 6pm. Very little driving is done late at night or in the early morning, but this is when the drivers are most likely to be involved in a fatal or injury crash per distance driven at that time.

Passengers

Continuing to examine people in light 4 wheel vehicles, we now look at the risk exposure for passengers. Because we don't have complete statistics on all passengers in vehicles involved in crashes, we will focus on passengers killed or injured in motor vehicle crashes and the amount of travel they do (Table 2). For context, in 2007, 119 passengers in motor vehicles were killed and 3 758 were injured[4].

[3] *Driver Travel.* ***http://www.transport.govt.nz/latest-results-1/***

[4] *Motor Vehicle Crashes in New Zealand 2007*.

Table 2: Passengers killed or injured in motor vehicle crashes and the associated travel and risk.

Age group	Number of passenger trip legs sampled (4 years)	Total distance travelled per year (100 million km)	Total time travelled per year (million hours)	Total deaths per year	Total deaths or injuries per year
0-4	*6 005*	27.3	72.4	5	128
5-9	*5 254*	24.3	63.5	6	196
10-14	*4 564*	22.8	62.4	5	272
15-19	*2 574*	16.4	42.4	33	943
20-24	*1 248*	10.7	26.8	16	482
25-29	*1 171*	10.6	25.3	7	229
30-34	*1 111*	7.1	16.9	4	152
35-39	*1 180*	9.5	21.1	3	129
40-44	*1 103*	10.1	21.0	4	117
45-49	*1 217*	8.2	20.0	4	103
50-54	*1 038*	9.8	20.6	3	96
55-59	*923*	6.1	14.4	3	83
60-64	*807*	5.6	13.4	2	67
65-69	*739*	3.8	9.1	3	61
70-74	*671*	4.4	9.3	3	61
75-79	*538*	1.8	5.8	4	52
80+	*490*	2.4	6.3	7	55

Examining passengers killed (Figure 10) or killed and injured (Figure 11) by age group, we see that the age group with the most people killed or killed and injured on an annual basis is the 15 – 19 year old group, followed by the 20 – 24 year olds. This is true for both male and female passengers. Between ages 30 to 70, the rate for those killed stays relatively constant and increasing slightly for those over 75 years old. For those killed and/or injured, it is a much smoother curve which decreases with age at a relatively smooth rate.

The annual average distance travelled by age (Figure 12) shows a quite different pattern. Those under 19 years old are far more likely to be a passenger and clock up a far greater distance as a passenger. Given people must be at least 15 years old before applying for a car driver licence, this is unsurprising. While under 30 years old, males and females travel similar distances as passengers, but once over 30 years old, females travel significantly further as passengers than males.

Figure 10: Average number of passengers in light 4 wheel vehicles killed in motor vehicle crashes per year, by age and gender.

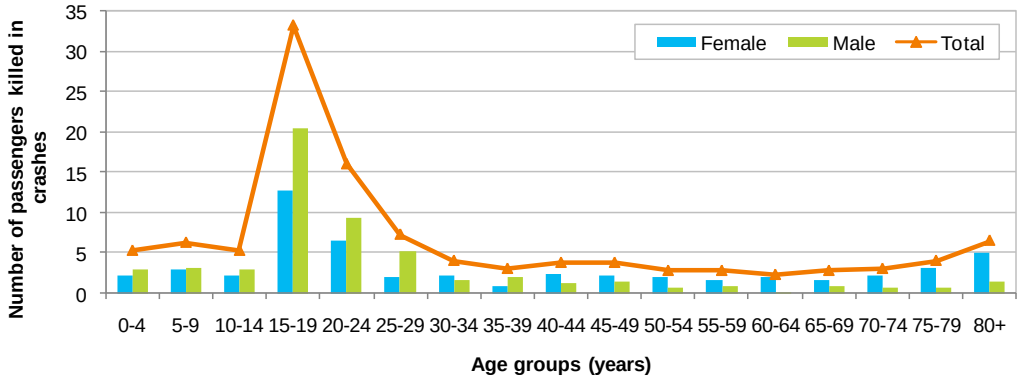


Figure 11: Average number of passengers in light 4 wheel vehicles killed or injured in motor vehicle crashes per year, by age and gender.

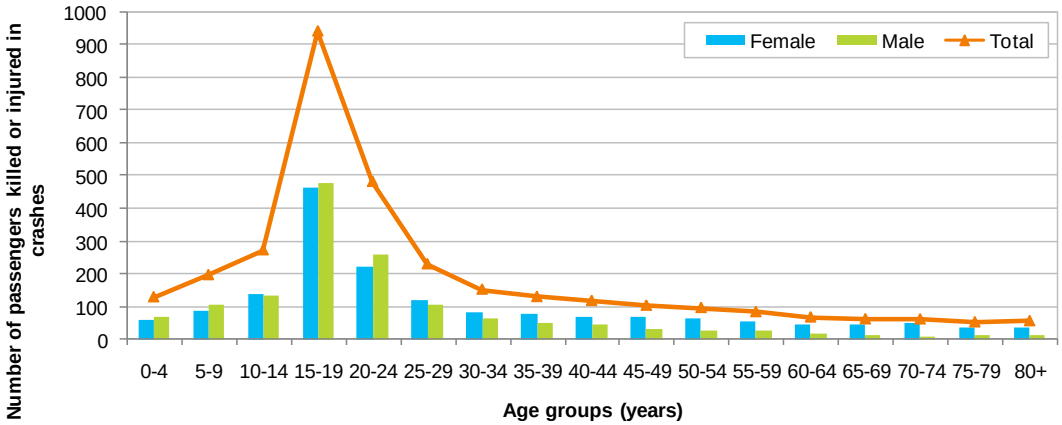
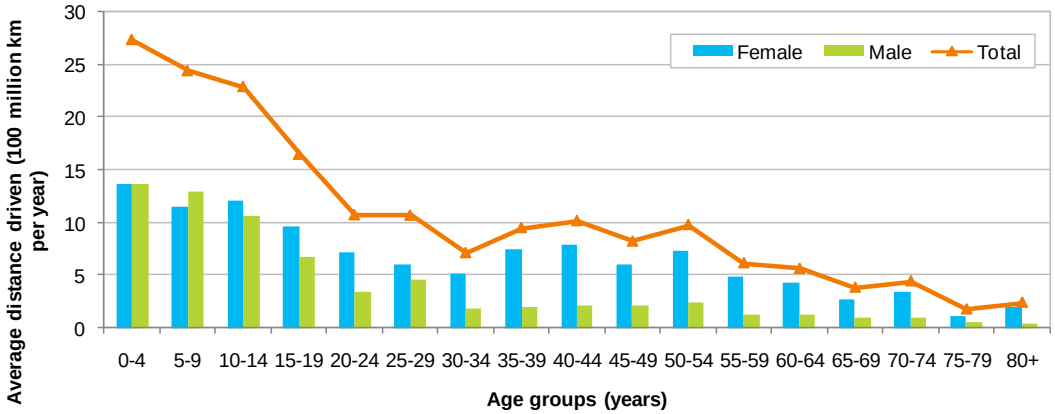


Figure 12: Average distance passengers in light 4 wheel vehicles are driven per year, by age and gender.



When the deaths and injuries are combined with the distances travelled, we get the passenger risk of death per 100 million km travelled (Figure 13) and risk of death or injury per 100 million km travelled (Figure 14). As with the drivers, there is a peak between ages 15 and 24 years for both the risk of death and the risk of death or injury. These values have not been adjusted for fragility. There is large uncertainty associated with the oldest groups because of the small number of trips surveyed for these age groups.

By age the lowest risk group are children under the age of 15 years old, which stays fairly constant in terms of risk of death, but increases slowly as a function of age when deaths and injuries are looked at.

Figure 13: Average number of passengers in light 4 wheel vehicles killed in motor vehicle crashes per 100 million km driven, by age and gender (not fragility adjusted).

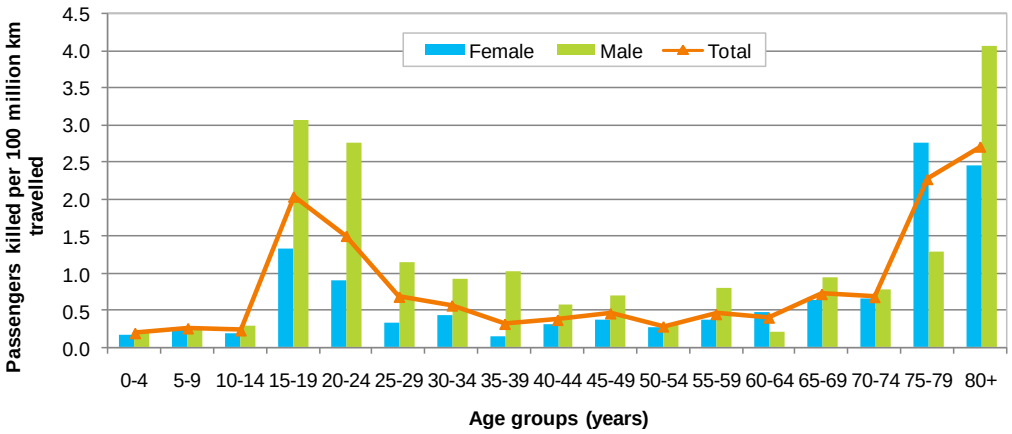
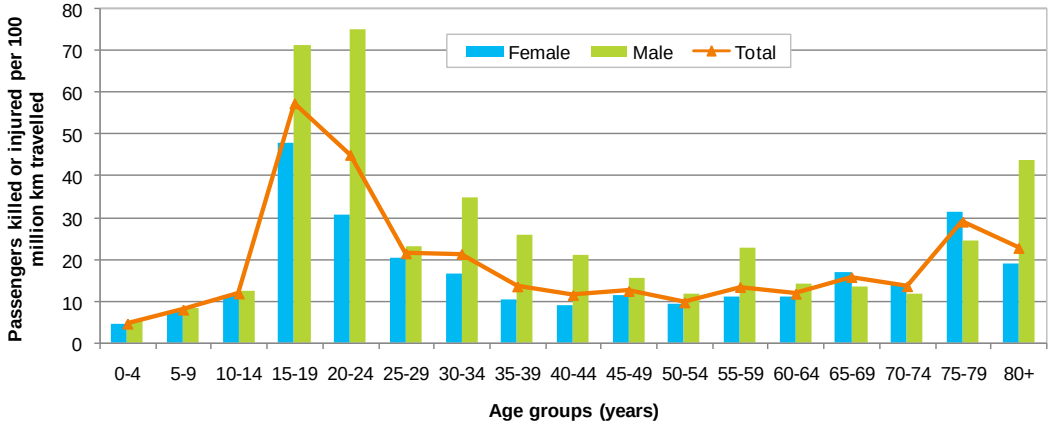


Figure 14: Average number of passengers in light 4 wheel vehicles killed or injured in motor vehicle crashes per 100 million km driven, by age and gender (not fragility adjusted).



Examining risk by gender, we find that the risk of death is much higher for males between ages 15 and 30. In contrast, the risk of death as a passenger for women is highest between 15 and 24 and over 75 years old.

Pedestrians

Having examined the risk for those travelling inside of light vehicles, we now look at those outside the vehicles, starting with pedestrians. There are a few things to note:

- The Household Travel survey focuses on walking in the road/footpath environment, so will not include off road recreational walking such as tramping, walking around a farm or shopping centre.
- In the category of pedestrians for this fact sheet we include wheeled pedestrians such as skateboarders, those in wheel chairs, mobility scooters etc.

- Because the injury statistics are from CAS, we only examine deaths and injuries in motor vehicle crashes. We do not have statistics for pedestrians killed or injured in collisions with cyclists or in falls on the roadway.

Table 3 summarises pedestrian travel times and the number of deaths and injuries by age. In 2007, 45 pedestrians were killed and 868 were injured in motor vehicle crashes[5].

Table 3: Pedestrians killed or injured in motor vehicle crashes and the associated travel and risk.

Age (years)	Total number of pedestrian trip legs sampled in 4 years	Number of hours spent walking per year (million hours)	Number of deaths or injuries in motor vehicle crashes per year
0-4	*930*	9.5	46
5-9	*1 083*	11.3	115
10-14	*1 949*	22.6	125
15-19	*1 783*	27.4	130
20-24	*1 357*	19.0	95
25-29	*1 049*	12.4	56
30-34	*1 419*	14.5	47
35-39	*1 321*	15.3	47
40-44	*1 232*	12.5	47
45-49	*1 209*	11.6	37
50-54	*1 068*	12.4	29
55-59	*1 046*	10.1	32
60-64	*821*	8.0	29
65-69	*784*	7.5	28
70-74	*751*	5.8	31
75-79	*526*	4.6	28
80+	*456*	5.1	52

As with the previous travellers, initially we examine the pedestrian deaths and injuries per year as a function of age group (Figure 15). The largest number of deaths and injuries occur for those between ages 5 and 19, with those between ages 50 and 80 having the lowest death and injury rates. There is no large difference in death and injury rates between males and females.

Examining the time spent walking by age and gender (Figure 16), a similar pattern is observed, with the most walking done by those aged between 10 and 24 years. There is no significant difference in time spent walking by gender either.

Combining these, we find the risk of pedestrian death or injury per million hours spent travelling by age and gender (Figure 17). The highest risk is for those aged 5-9 years and over 80 years old, however people of both those ages are quite fragile. There is no significant trend with gender observed.

[5] *Motor Vehicle Crashes in New Zealand 2007.*

Figure 15: Average number of pedestrians killed or injured in motor vehicle crashes per year by age and gender.

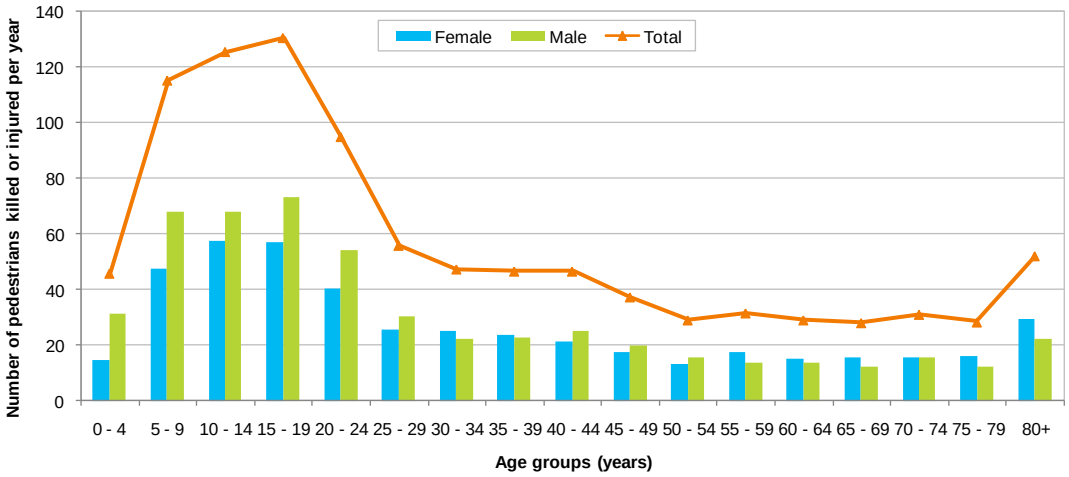


Figure 16: Average time spent walking per year by age and gender.

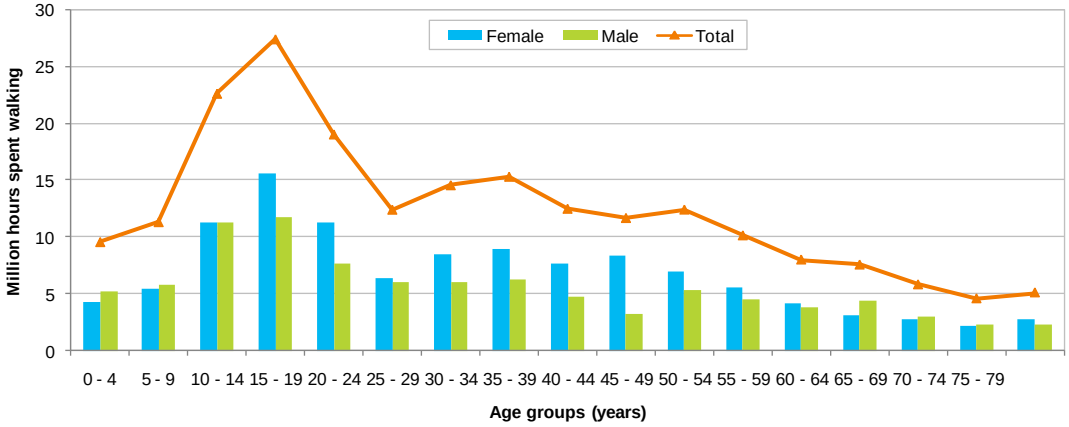
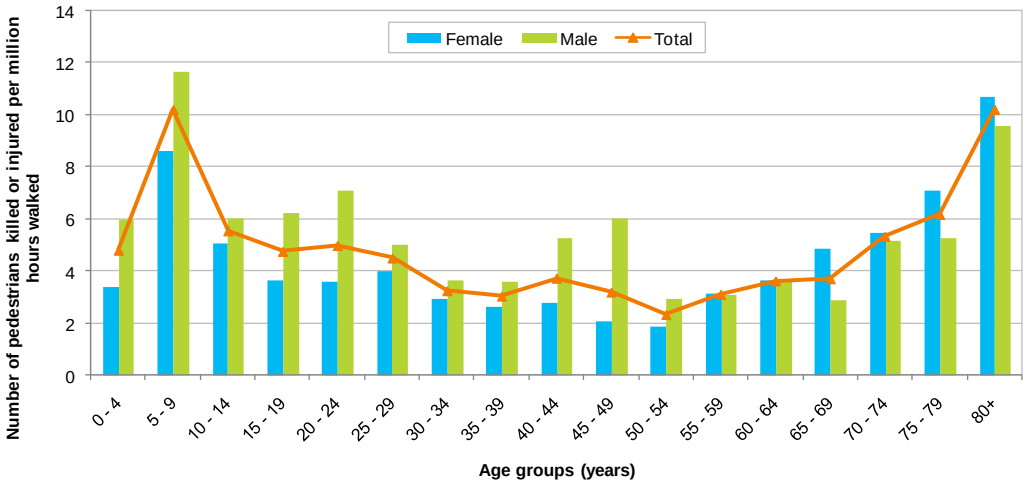


Figure 17: Average number of pedestrians killed or injured in motor vehicle crashes per time spent walking by age and gender (not fragility adjusted).



Pedestrian risk by time of day and age

We can also examine pedestrian risk by time of day to see when is the riskiest time of day to be out walking.

Figure 18 and Table 4 below compare walking during daylight hours with walking during night time (dark) hours by various age groups.

Figure 18: Average number of pedestrians killed or injured in motor vehicle crashes per million hours spent walking by day time/night time and age.

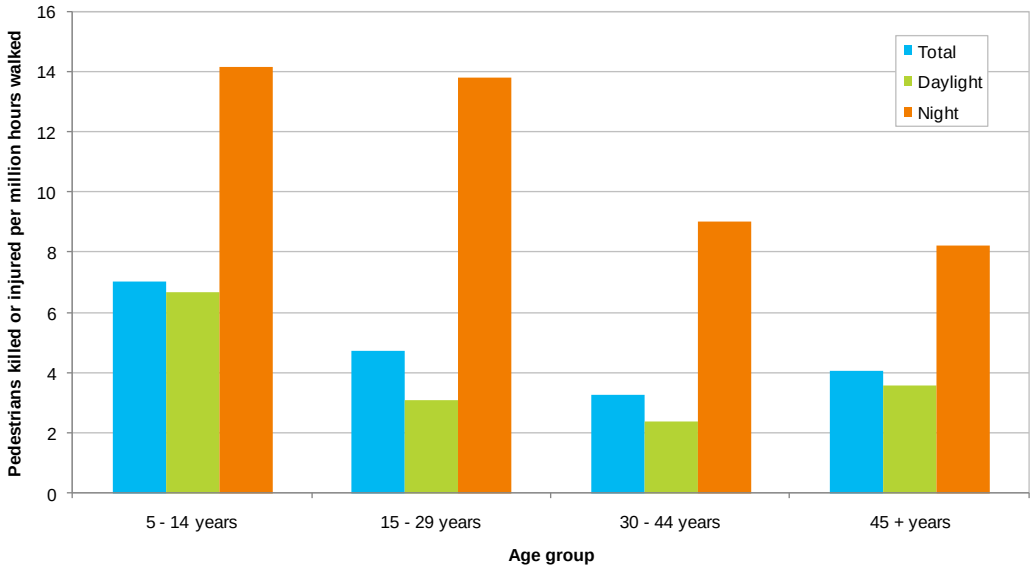


Table 4: Pedestrians killed or injured in motor vehicle crashes and time spent walking by daylight and night time for different age groups.

Age group	Time spent walking (Million hours)				Pedestrian deaths and injuries			
	Total	At night	During the day	(% at night)	Total	At night	During the day	(% at night)
5 - 14 years	33.8	1.7	32.1	5%	238	25	214	10%
15 - 29 years	58.7	9.0	49.2	15%	277	125	152	45%
30 - 44 years	42.2	5.6	36.5	13%	138	51	88	37%
45 + years	65.1	6.7	58.4	10%	264	55	209	21%

From Figure 18, night time walking is far riskier than daytime walking for all of the age groups examined. The biggest contrast in risk between day and night is for those 15-29 years old. They are more likely to walk at night than the other age groups, but it is still only 15% of the time spent walking. Unfortunately 45% of the pedestrian deaths and injuries in that age group occur at night.

We can also examine the risk by time of day in more detail by looking at the hour of day people are walking. In order to do this, we need to examine larger age groups, so look at children under 18 years old and adults 18 years and older.

Looking at the number of pedestrians killed or injured by hour of day (Figure 19), we can see a quite different pattern between the children and the adults. Children are most likely to be killed or injured between 3 and 4pm, followed by between 4pm and 6pm and 8am to 9am. This coincides with the times they walk the most (Figure 20), most likely going to and from school.

Adult pedestrian deaths and injuries are less focussed in time and spread out relatively evenly between 8am and 6pm.

Figure 19: Average number of pedestrians killed or injured in motor vehicle crashes per year by hour of day and age.

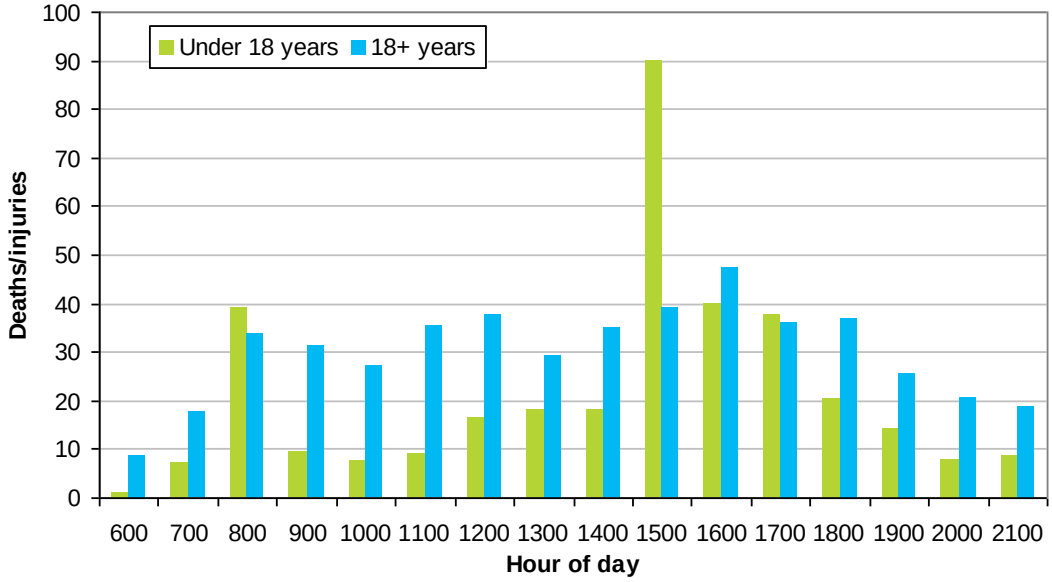
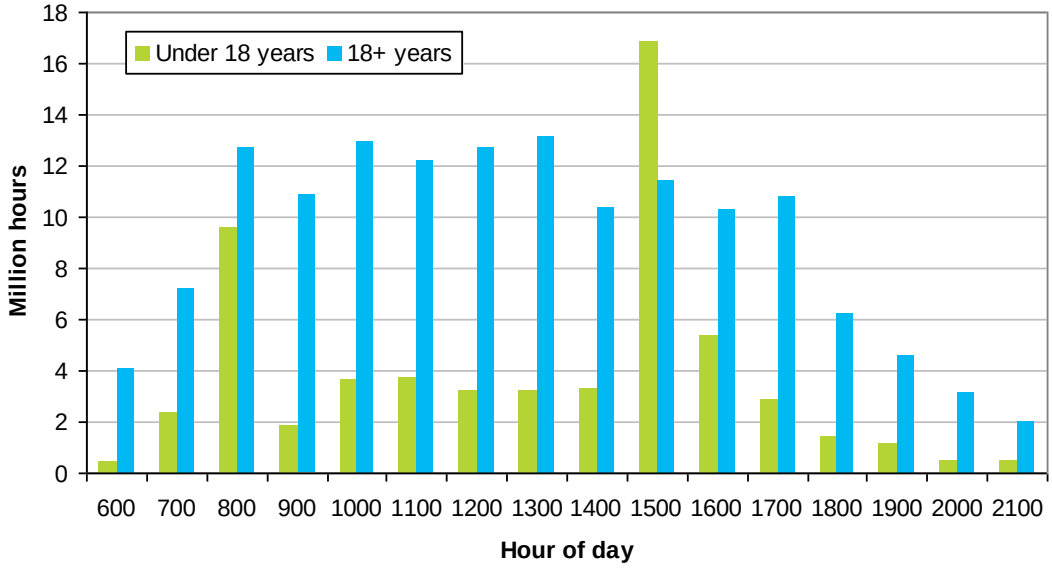


Figure 20: Average time spent walking per year by hour of day and age.

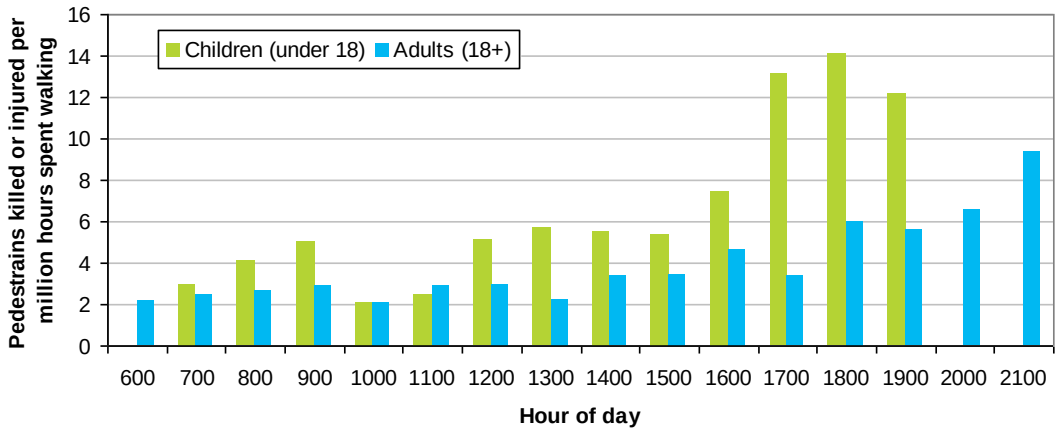


As mentioned previously, the trends with respect to time of day for deaths and injuries are very similar to those of when most walking occurs. Children walk most around the start and finish of school whereas adult walking is more evenly spread over the day.

When the time spent walking and casualties by hour are combined to get the risk as a function of time of day (Figure 21), the sharp peaks when children are out walking

disappear. Instead the most risky time of day for children to be out walking is between 5 and 7pm. Adults also show no particular peaks, but instead the risk slowly increases into the evening. Unfortunately risk could not be calculated per hour outside the hours shown as there were too few trips to provide reliable estimates of time, but as shown in Figure 18, between sunset and sunrise was far more risky than between sunrise and sunset.

Figure 21: Average number of pedestrians killed or injured in motor vehicle crashes per million hours spent walking per year by hour of day and age.



Note: Values have not been calculated between 2200 and 0600 and for children between 0600 and 2000 - 2100 as the number of trips was too small to provide reliable estimates.

Cyclists

We now move from pedestrians to cyclists. Again, it should be noted that

- The Household Travel survey focuses on travel in the road/footpath environment, so will not include off road recreational cycling such as mountain biking.
- Because the injury statistics are from CAS, we only examine deaths and injuries in motor vehicle crashes. The statistics here do not include cyclists killed or injured in collisions with other cyclists or pedestrians, or in crashes not involving anyone else.

Table 5 shows cyclists killed or injured in motor vehicle crashes and the times spent travelling and the distances travelled. Because there are a smaller number of cycle trips in the sample, we will examine much broader age groups than previously. In 2007, 12 cyclists were killed and 880 were injured in motor vehicle crashes.[6]

[6] *Motor vehicle crashes in New Zealand 2007*

Table 5: Cyclists killed or injured in motor vehicle crashes and the time spent travelling and the distances travelled.

Age group	Total number of cycled trip legs in 4 years	Number of hours spent cycling per year (million hours)	Distance cycled per year (100 million km)	Average number of deaths or injuries in motor vehicle crashes per year
5 - 14 years	*691*	5.6	0.40	175
15 - 29 years	*326*	4.4	0.53	203
30 - 44 years	*379*	5.4	0.85	190
45 + years	*413*	5.2	0.66	167

Starting with the average number of cyclists killed or injured in motor vehicle crashes per year (Figure 22), we can see that there aren't any large differences between the age groups.

Figure 22: Average number of cyclists killed or injured in motor vehicle crashes per year, by age group.

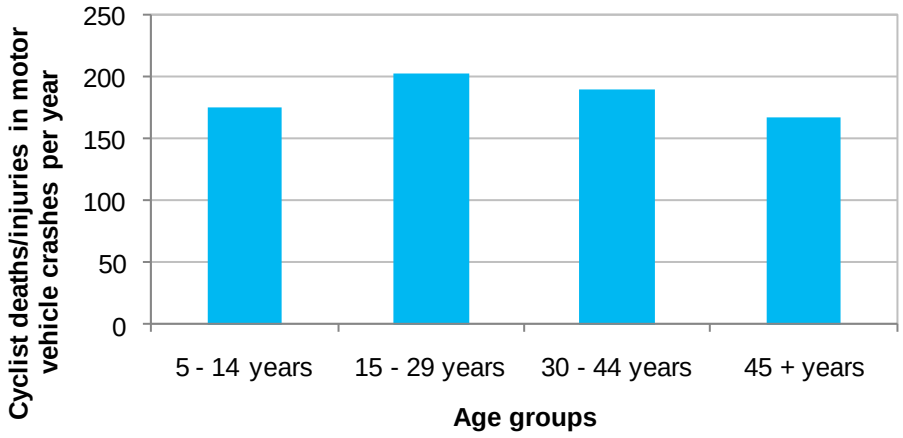


Figure 23: Average number of hours spent cycling per year by age group.

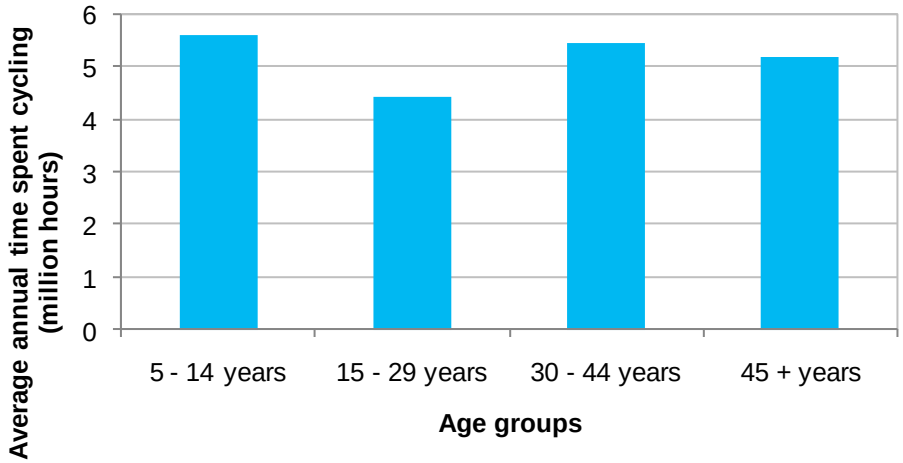
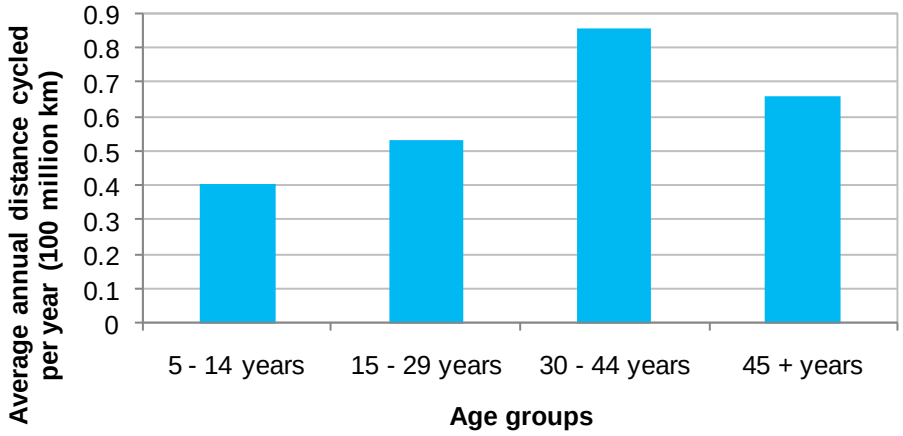


Figure 24: Average distance cycled per year by age group.



This also hold true for the average time spent cycling by age group (Figure 23), however this is not the case when looking at the average distance cycled by age group (Figure 24). It is noticeable that while children under 15 years old cycle a much shorter distance per year than adults, they do so over a slightly longer time per year. This makes sense in that children cycle more slowly than adults, so will take a longer time to cover the same distance.

Combining these to get the risk involved, we see quite different patterns by age depending on whether the risk is per distance cycled (Figure 25) or by time spent cycling (Figure 26). Children under 15 years old have a very high risk per distance cycled compared to those over 30 years old, but an equivalent risk to those over 30 per time spent cycling. As with driving and walking, those 15 – 29 years old generally have a higher risk than those over 30 for both distance cycled and time spent cycling.

Figure 25: Average number of cyclists killed or injured in motor vehicle crashes per distance cycled, by age.

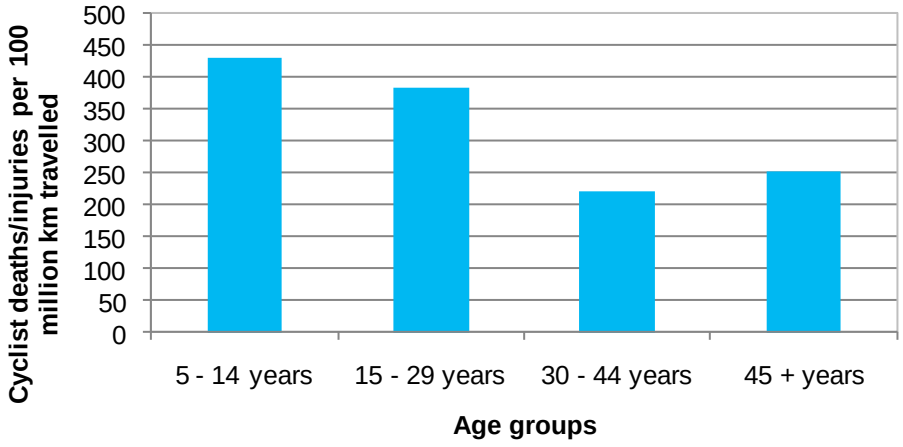
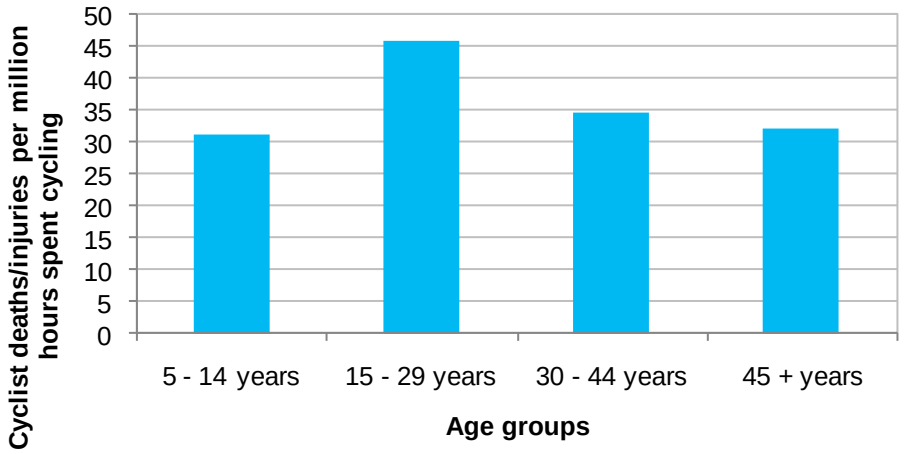


Figure 26: Average number of cyclists killed or injured in motor vehicle crashes per time spent cycling, by age.



Motorcyclists

Because there are far fewer motorcyclists and motorcyclist trips in the Travel Survey, there is not enough information to be able to break down the motorcyclist statistics by age. Table 6 gives a summary of motor cyclist travel, deaths and injuries per year and risk for between 2003 and 2007. In 2007, 41 motorcyclists were killed and 1 336 were injured in motor vehicle crashes[7].

Table 6: Motorcyclist travel, deaths and injuries and associated risks (2003 – 2007).

Total trip legs in sample	Average million hours per year	Average 100 million km per year	Average deaths/injuries per year	Risk (per million hours travelled)	Risk (per 100 million km travelled)
551	7.20	2.01	891	124	443

References

Evans, Leonard (2004). Traffic Safety

Additional information

For more information about the background to the survey see the Ministry of Transport website at **www.transport.govt.nz/ongoing-travel-survey-index/**

For further information on crash statistics see *Motor Vehicle Crashes in New Zealand*, the annual statistical statement produced by the Ministry of Transport. This publication is available in secondary school libraries and many public libraries. Enquires relating to crash statistics may be directed to the Ministry of Transport, PO Box 3175, Wellington, or by email on **info@transport.govt.nz**.

For more information about road safety, visit the Ministry of Transport website at **www.transport.govt.nz**.

[7] *Motor vehicle crashes in New Zealand 2007*

Glossary

Cycle: Excludes off-road activities such as mountain biking.

Driver: in this fact sheet refers to all drivers of light 4 wheeled vehicles.

Light 4 wheeled vehicles: cars, station wagons, vans, utes, or 4 wheel drives.

Motorcyclist: Includes scooters.

Passenger: passenger in a light 4 wheeled vehicle. Passengers in motorcycles, buses, trains and taxis are coded under those categories. Aircraft and boat passengers are included in the 'Other' category.

Travel: includes all on-road travel by any mode; any walk which involves crossing a road or walking for 100 metres or more along a public footpath or road; cycling on a public road or footpath; some air and sea travel. Excludes off-road activities such as tramping, mountain biking, walking around the mall or around the farm.

Travel mode: the method of travel. Includes vehicle driver, vehicle passenger, pedestrian, cyclist, motorcycle rider or passenger, bus or train passenger, ferry or aeroplane passenger and so forth.

Trip distance: For road-based trips, distances are calculated by measuring the distance from the start address along the roads to the finish address. If an unusual route was used, the interviewer records an intermediate point to indicate the route; otherwise, the journey is assumed to follow the quickest available route.

Ute: Utility vehicle; a light flatbed truck weighing up to 3.5 tonnes. Typically based on a car or van model with a front cab and a flatbed instead of rear seats or luggage space.

Walk: Includes walkers, joggers, skateboarders, users of mobility scooters and children on tricycles.

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