

**FEDERAL OFFICE OF ROAD SAFETY
DOCUMENT RETRIEVAL INFORMATION**

Report No	Date	Pages	ISBN	ISSN
CR 148	August 1994	125	0 642 51149 7	0810-770X

Title and Sub-title

Qualitative Dimensions of Young Driver Driving Exposure as a Function of Time of Day

Author(s)

Crettenden, Andrew V., Yeo, Eun-Young & Drummond, Alan E.

Performing Organization (Name and Address)

Accident Research Centre
Monash University
CLAYTON VIC 3168

Sponsor

Federal Office of Road Safety
GPO Box 594, CANBERRA ACT 2601

Available from

Federal Office of Road Safety
GPO Box 594, CANBERRA ACT 2601

Abstract

This report involves the exploration of the qualitative dimensions of young driver driving exposure, and how these differ during the day compared to night-time. Data was collected using two methods: a nationwide door-to-door survey of 3008 drivers, and direct sampling of almost 600 'active' drivers undertaking a trip. Descriptive results are presented for the driving attitudes and behaviours, type of car driven, and personality characteristics of young drivers and a comparison sample of older drivers.

Keywords

young driver, exposure, qualitative, night, day

NOTES

- (1) FORS Research reports are disseminated in the interests of information exchange
- (2) The views expressed are those of the author(s) and do not necessarily represent those of the Commonwealth Government
- (3) The Federal Office of Road Safety publishes four series of research report
 - (a) reports generated as a result of research done within FORS are published in the OR series;
 - (b) reports of research conducted by other organisations on behalf of FORS are published in the CR series
 - (c) reports based on analyses of FORS' statistical data bases are published in the SR series
 - (d) minor reports of research conducted by other organisations on behalf of FORS are published in the MR series

**QUALITATIVE DIMENSIONS OF YOUNG
DRIVER DRIVING EXPOSURE AS A FUNCTION
OF TIME OF DAY**

**ANDREW CRETTENDEN
EUN-YOUNG YEO
ALAN DRUMMOND**

AUGUST 1994

EXECUTIVE SUMMARY

In the context of their high overinvolvement in road crashes, there is relatively little of substance known about specific contributory factors to young driver crashes. One example of this is lack of explanatory information for the riskiness of nighttime driving. With a traditional focus on describing the (quantitative) nature of the problem rather than exploring and understanding contributory processes, there has been little progress in specifically improving young driver safety.

There is evidence to indicate that the amount of nighttime driving undertaken by young drivers cannot explain their elevated risk of crash involvement at night. When crash frequencies are adjusted for estimated distances travelled by time of day and driver age/experience, nighttime driving is a riskier activity for all driver groups, but particularly for young/inexperienced drivers.

What are the contributory factors to this high level of crash risk? On first principles, nighttime driving is an inherently more risky activity due to impoverished visual conditions. It seems reasonable to also suggest that qualitative exposure factors may also account for some of the differences in crash risk.

For example, there may be a different 'type' of young driver on the roads at night compared to those who are 'daytime' drivers, reflected by the fact that night-time drivers may do more recreational driving, with a greater number of passengers. Their trips may be more spontaneous than daytime drivers' trips and be in less familiar areas. It may also be that night-time young drivers have different attitudes towards their cars or to driving in general which make them more susceptible to exposure to risky driving situations.

The fundamental aim of the project, therefore was:

"To establish whether there are *appreciable* differences in the qualitative aspects of driving exposure between young drivers classified as night-time drivers and other young drivers and whether these differences are more marked than for older drivers."

Data on the qualitative dimensions of driving were collected via two methods: a nationwide door-to-door survey of 3008 drivers and a complementary interview survey, co-ordinated with Random Breath Testing activities in two States, of almost 600 'active' drivers interviewed during an actual trip.

As both between- and within-group comparisons were to be made, residential survey respondents in three age groups (<21 years, 21-25 years and 26-50 years) were divided into five independent groups on the basis of their reported exposure. These groups were:

- Daytime (D) Group, - those who drove *more* than the daytime average and *less* than the nighttime average.
- Nighttime (N,d>n) Group 1, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *more* of their driving during the day.

- Nighttime (N, n>d) Group 2, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *less* of their driving during the day.
- High Exposure (HE) Group, - those who drove *more* than the daytime average and *more* than the nighttime average.
- Low Exposure (LE) Group, - those who drove *less* than the daytime average and *less* than the nighttime average.

It is believed that this is the first time that such within-group (and between (age) groups) comparisons have been made and therefore results were presented in great detail. Results of this study have shown that the driving of a designated "nighttime" young driver sub-group appears to be qualitatively different in a range of ways. Compared to their proportion of the young driver age group, this sub-group appear:

- more likely to be full-time students
- less likely to have an annual income over \$21,000
- less likely to be married
- less likely to have children
- less likely to speak languages other than English at home
- less likely to be paying a mortgage
- more likely to wear glasses or contact lenses
- more likely to drive cars more than 10 years old, display personalised number plates and drive a modified car
- more likely to drive their own car
- more likely to be under pressure to get to their destination
- more likely to be carrying passengers who are friends
- more likely to have received one or more warnings in the last 12 months.

When this "nighttime driver" young driver sub-group is compared to its "daytime driver" peer group, many of the same differences remain. The differences in reported driving habits, driving assessments and "personality" scales between these sub-groups were generally small.

In addition to specific results, the study also raised some fundamental policy issues on the potential for within group targetting of young driver crash countermeasures. While the qualitative exposure differences are generally not sufficient (in their own right) to justify differential countermeasure attention, it is possible to partition the young driver population into independent groups using a wide range of criteria, of which driving exposure characteristics is but one.

Given this, and an "acceptable" link between these criteria and crash risk, there may be scope to apply different types of countermeasures to sub-groups or differential compliance requirements with the same countermeasure. This would introduce the concepts of countermeasure efficiency and equity into the young driver countermeasure design and evaluation process, in addition to the traditional criterion of effectiveness.

TABLE OF CONTENTS

	Page
1.0 INTRODUCTION	1
1.1 Conceptual issues in young driver safety	1
1.2 Focussing on qualitative dimensions of exposure	3
1.2.1 Quantitative exposure is not an explanation	3
1.3 Aim of this project	4
2.0 METHOD	4
2.1 The Qualitative Exposure Questionnaire	4
2.1.1 Mass questionnaire survey	5
2.1.2 Interviewing of active drivers	5
2.2 Residential survey	6
2.2.1 Method of sample generation	6
2.2.2 Method of interviewing	7
2.3 Survey of active drivers	7
2.3.1 Method of interviewing at RBT stations	7
2.4 Exposure groups	8
2.4.1 Measures of exposure	8
2.4.2 Nighttime driving > daytime driving	8
2.4.3 Measures of central tendency	9
2.4.4 Other methods	10
2.4.5 Resultant groups	10
3.0 RESULTS	12
3.1 Sample information	12
3.1.1 Age	12
3.1.2 Sex	12
3.1.3 Metropolitan/Rural	12
3.1.4 Summary	13
3.2 Exposure groups	13

3.3	Demographics	14
3.3.1	Sex of exposure group members	14
3.3.2	Marital status	15
3.3.3	Children	16
3.3.4	Mortgage	17
3.3.5	Rent/Board	18
3.3.6	Education	19
3.3.7	Occupation	20
3.3.8	Income	24
3.3.9	Smoking	25
3.3.10	Second language	26
3.3.11	Participation in sport	27
3.4	Characteristics of vehicle	28
3.4.1	Regular access to a vehicle	28
3.4.2	Age of car	28
3.4.3	Insurance	29
3.4.4	Modifications to car	30
3.4.5	Personalised registration plates	31
3.4.6	Servicing of car	32
3.4.7	Washing of car	33
3.4.8	Waxing/polishing of car	34
3.5	Characteristics of driving exposure	35
3.5.1	Work and non-work related driving	35
3.5.2	Whose car do you drive?	37
3.5.3	Do you ever just go for a drive?	41
3.5.4	How familiar are you with the routes you take?	43
3.5.5	Are you under time pressure to reach your destination?	47
3.5.6	How many passengers do you usually carry?	51
3.5.7	Are your passengers male, female, or both?	55
3.5.8	How are your passengers related to you?	59
3.5.9	Volume of radio/cassette	63
3.5.10	Parking infringement tickets	64
3.5.11	Traffic infringement tickets	65
3.5.12	Warnings	66
3.5.13	Most important factor for safety on Australian roads	67
3.6	Driving habits and attitudes - NIGHTDAY	68
3.6.1	Young drivers - rate risk-taking compared to other drivers of the same sex but older than you	68
3.6.2	City driving at nighttime - degree of danger	69

3.6.3	I think it is easier to drive at night than during the day	69
3.6.4	How often do you drive 10km/h above the speed limit at nighttime?	70
3.6.5	How often do you drive 10km/h above the speed limit during the day?	71
3.6.6	How often do you drive 10km/h above the speed limit on open roads?	71
3.6.7	How often do you get angry at the actions of other drivers?	72
3.7	Driving habits and attitudes - NIGHTAVG	73
3.7.1	Rate your risk-taking compared to other drivers of your age and sex	73
3.7.2	Rate your driving skills compared to other drivers of your age and sex	74
3.7.3	City driving at night - degree of danger	74
3.7.4	I think it is easier to drive at night than during the day	75
3.7.5	How often do you feel tired when driving at night-time?	75
3.7.6	How often do you get angry at the actions of other drivers?	76
3.7.7	Do you support or oppose speed cameras/radar as a means of improving safety on Australian roads?	77
3.7.8	How often do you drive 10km/h above the speed limit on open roads?	77
3.8	Driving habits and attitudes - SUMMARY STATISTICS	78
3.8.1	How often do you drive 10km/h above the speed limit?	78
3.8.2	Do you support or oppose speed cameras/radar as a means of improving safety on Australian roads?	79
3.8.3	I think it is easier to drive at night than during the day	79
3.8.4	How often do you feel tired when driving at night-time	80
3.8.5	I prefer to drive rather than be a passenger in a car	80
3.9	Personality characteristics - NIGHTDAY	81
3.10	Personality characteristics - NIGHTAVG	81
3.10.1	I get annoyed when I'm not allowed to do what I want to	81

3.10.2	I like my life to be planned and organised	82
3.11	Personality Characteristics - SUMMSTAT	83
3.11.1	It is OK to occasionally get very drunk	83
3.11.2	I like to do things on the spur of the moment	83
3.12	Summary information	84
3.12.1	Proportional involvement	84
3.12.2	Variable summary and 'expected' differences	86
3.13	Random breath testing driver interview data	90
3.13.1	Introduction	90
3.13.2	Results	91
4.0	DISCUSSION OF RESULTS	95
4.1	Background	95
4.2	Review of study outcomes	95
5.0	CONCLUSION	98

REFERENCE

APPENDICES

QUALITATIVE DIMENSIONS OF YOUNG DRIVER DRIVING EXPOSURE AS A FUNCTION OF TIME OF DAY

1.0 INTRODUCTION

In the context of their high overinvolvement in road crashes, there is relatively little of substance known about specific contributory factors to young driver crashes. With a traditional focus on describing the (quantitative) nature of the problem rather than exploring and understanding contributory processes, there has been little progress in specifically improving young driver safety.

With motivational approaches (that is, making young people "older" people) requiring a long term research effort to underpin the development of effective crash countermeasures and with driving performance-based countermeasures (that is, making new drivers "better" drivers) the subject of current research activity, there has been substantial attention directed towards exposure reduction countermeasures and, more specifically, a nighttime driving restriction.

However, it would appear that the implementation of such a global measure as a nighttime driving restriction is unlikely in an Australian jurisdiction. In these circumstances, it becomes more important to attempt to identify the contributory factors to the increased risk of nighttime driving in order to develop targetted (and therefore more "acceptable") nighttime crash countermeasures. The current study represents one such attempt.

1.1 CONCEPTUAL ISSUES IN YOUNG DRIVER SAFETY

The factors that contribute to young driver crash risk can be broadly grouped into two categories: (i) factors determining a driver's exposure to crash risk, and (ii) driver characteristics. The former are variables external to the driver while the latter group consists of variables internal to the driver. As shown in Figure 1, these two sets of factors interact to determine crash risk.

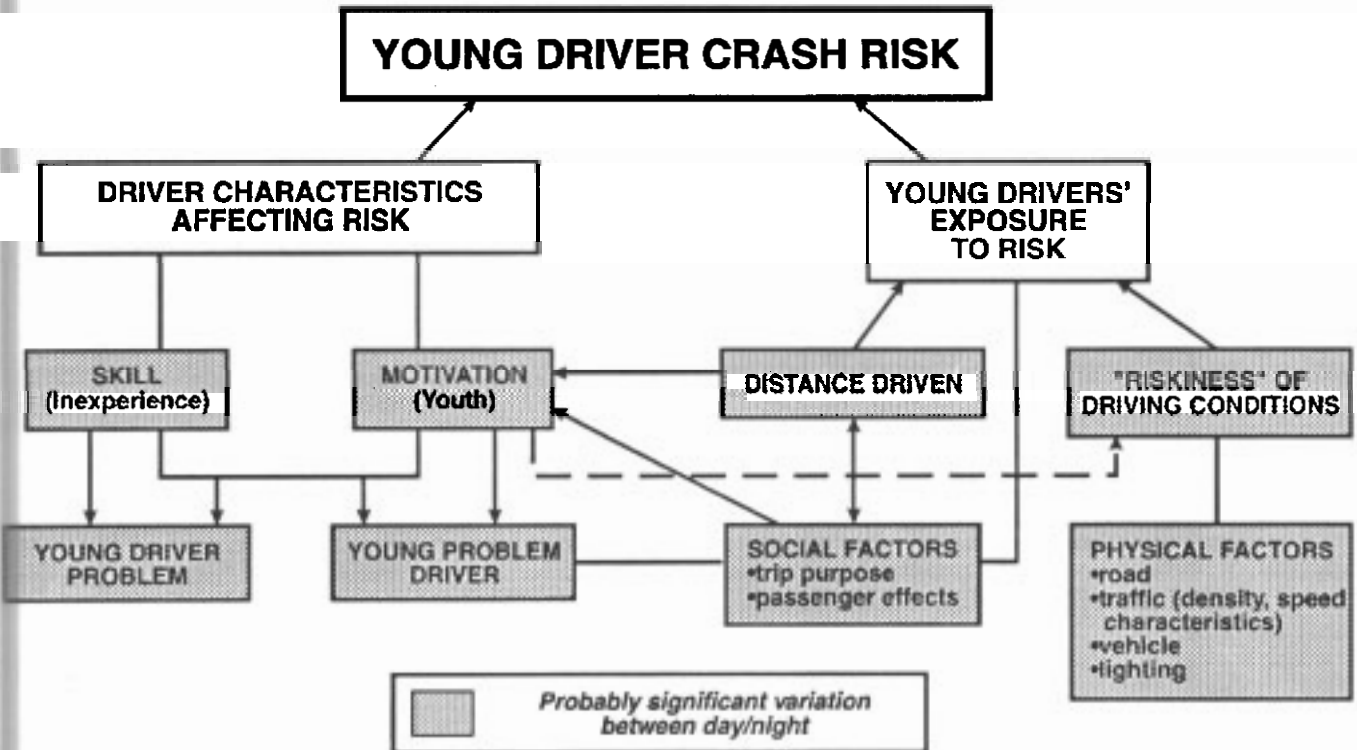
Exposure to risk factors can be subdivided into a *quantitative* component (distance driven or time spent driving) and a *qualitative* component that encompasses the nature of the distance travelled or time spent driving. Qualitative factors include:

- physical characteristics of the road traffic environment which affect the difficulty of the driver's task
- social characteristics of the driving such as the purpose of the trip (eg. commuting to/from work, recreational) and passenger factors (eg. number, relationship to driver)

It has been established that young drivers are over-involved in nighttime crashes. The greater amount of driving done at night by young drivers compared to older drivers has been offered as an explanation for this over-involvement but, as shown in Section 1.2.1, the *quantity* of young driver exposure at night has little explanatory power.

FIGURE 1

**MODEL OF CONTRIBUTING FACTORS
TO YOUNG DRIVER CRASH RISK**



One approach to curbing night-time crashes has been to restrict nighttime exposure through the implementation of night-time driving restrictions but this is yet to be implemented or trialled in Australia (although they have been suggested as part of graduated licensing schemes). It becomes important to also consider the possible differences in the qualitative dimensions of daytime and night-time driving exposure, not only to explain the greater risk for young drivers in night-time crashes, but also to identify specific types of (high risk) nighttime exposure which could be targeted for countermeasure development.

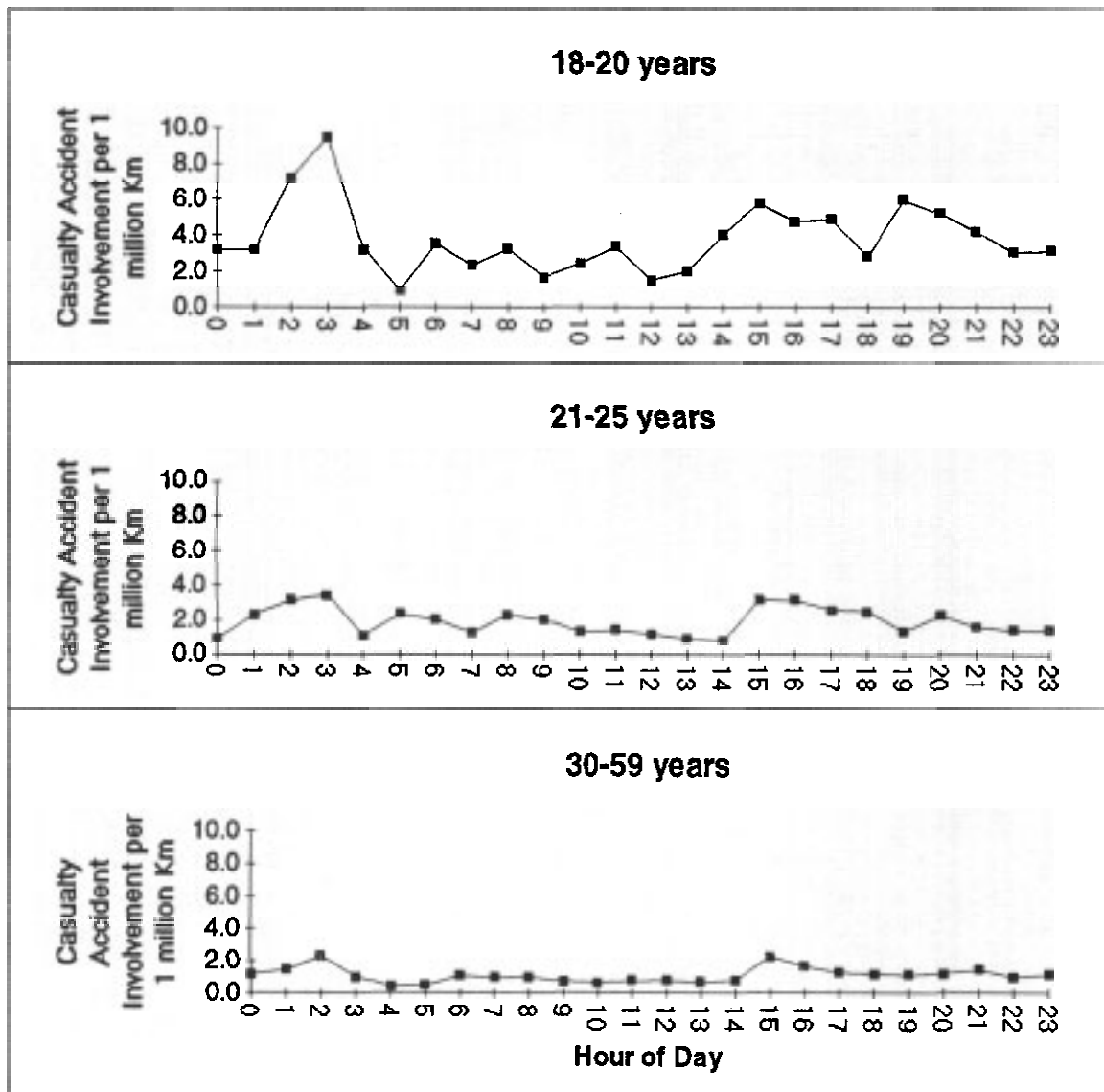
1.2 FOCUSSED ON QUALITATIVE DIMENSIONS OF EXPOSURE

1.2.1 Quantitative Exposure Is Not An Explanation

It may have been thought that young drivers were over-involved in crashes at night because they participate in much more night-time driving. However, there is evidence from Victoria that the quantity of night-time driving cannot explain their over-involvement in night-time crashes. When crash frequencies are adjusted for estimated distances travelled by time of day and driver age/experience, the resultant graphs (below) demonstrate that night-time driving is a risky activity (per kilometre travelled) for all driver groups but particularly for young/inexperienced drivers. Early morning hours are associated with the highest levels of absolute risk (number of crash involvement per million kilometres travelled) for the younger drivers.

FIGURE 2

Absolute Risk Estimates by Age Group and Hour of Day (Source: Drummond and Yeo; 1992)



On first principles, night-time driving is an inherently more risky activity than daytime driving due to the impoverished visual conditions. Such environmental qualitative factors, however, may only be a partial explanation for increased risk. It seems reasonable to suggest that 'social' qualitative factors may also account for some of the difference in nighttime crash risk between younger and older drivers. For example, there may be a different 'type' of young driver on the roads at night compared to those who are 'daytime' drivers, reflected by the fact perhaps that night-time drivers may do more recreational driving, with a greater number of passengers. Their trips may be more spontaneous than daytime drivers' trips and be in less familiar areas. It may also be that night-time young drivers have different attitudes towards their cars or to driving in general which make them more susceptible to exposure to risky driving situations.

The investigation of such qualitative dimensions of driving exposure was, therefore the prime focus of this study

1.3 AIM OF THIS PROJECT

The fundamental aim of the project is set out below:

"To establish whether there are *appreciable* differences in the qualitative aspects of driving exposure between young drivers classified as night-time drivers and other young drivers and whether these differences are more marked than for older drivers."

If possible, it also aims to determine the extent to which the increase in night-time risk of crash involvement may be explained by any of the following: the type of night-time driver; the motives for night-time driving, and the correlates of night-time driving.

The results of this study need to be taken into account in the context of one other element of this research program, namely, the effect on driving performance of degraded visual conditions, as together, these factors should account for the increase in the nighttime risk of casualty crash involvement.

2.0 METHOD

2.1 THE QUALITATIVE EXPOSURE QUESTIONNAIRE

The primary aim of the questionnaire was to collect valid and reliable information on the qualitative dimensions of exposure to risk. A component providing quantitative exposure information was also required to allow the disaggregation of the respondents into "daytime" and "night-time" groups.

Previous work from the Young Driver literature was drawn upon to provide ideas for the appropriate selection of dimensions of qualitative exposure such as vehicle, driver and trip characteristics. 'Brainstorming' sessions were also conducted with other road safety researchers to gather expert opinions on which were the most important or relevant qualitative exposure variables.

Feedback from the Australian Bureau of Statistics and a market research company was obtained regarding the format of the questionnaire and the structure of certain questions.

Two methods of data collection were explored. They were: mass questionnaire survey and direct interviewing of 'active' drivers while out on the road. The two methods, including their advantages and disadvantages, are discussed below.

2.1.1 Mass Questionnaire Survey

The survey was initially designed as a mailout, or handout questionnaire to be completed by the respondent in their own time. Respondents would be encouraged to return the questionnaire by a particular date.

The questionnaire format would allow the collection of a large volume of information on many exposure measures. It would guarantee anonymity which could subsequently increase the truthfulness of responses. However, it would not be possible to explore issues in depth, as responses would be forced to 'fit' the questionnaire, thus sacrificing the richness of the data. How seriously the information was provided could also not be controlled.

Further, low response rates were expected due to the length of the questionnaire, creating the need for extensive and costly follow-up procedures and the statistical monitoring of returned questionnaires over time to allow for response bias measurement. Due to this extra cost and inconvenience, direct interviewing by a market research company was found to be a comparatively inexpensive option, given that a guaranteed number of interviews would be completed following an exact nationwide sampling structure (including age, sex and metropolitan/rural splits) by a specified date. This would also allow the collection of rich data, the exploration of more complex issues, control over the respondents' understanding of the questions, and sincerity of the responses.

Both telephone and door-to-door methodologies were considered. Door-to-door interviews were chosen as they allow for the use of cards and the display of information to allow easier responses to more complex questions.

2.1.2 Interviewing of Active Drivers

The interviewing of active drivers would be completed at a pre-determined site such as Random Breath Testing (RBT) Operations. This method allows direct control over sampling, removing the need for respondents to give a quantitative measure of their driving exposure as they are sampled proportional to their amount of daytime or night-time exposure.

Direct interviewing of active drivers has the same advantages as a door-to-door procedure, such as the collection of more detailed information. Specifically, drivers can describe actual characteristics of the trip they are taking, including destination, purpose of the trip, whether it was a regular trip etc. Details of passengers' age, sex, and relationship to the driver can also be collected.

Despite this method being somewhat labour intensive and restricted to a certain geographical region ie. one or two capital cities, the specific nature of the data it could collect complemented the more general nature of the door-to-door survey.

Thus, data on the qualitative dimensions of exposure to risk were collected in two ways:

1. A nationwide residential survey in which general exposure information is collected.
2. A complementary interview survey, co-ordinated with RBT operations, in which more 'trip-specific' information is obtained on a smaller, geographically restricted sample of active drivers.

2.2 RESIDENTIAL SURVEY

2.2.1 Method of sample generation

The residential survey sample was calculated from 1986 census figures for each Australian State. Table 2.1 shows the sample structure.

Table 2.1
Sample structure incorporating age group, gender
and metropolitan/rural splits.

	under 21		21-25		26-50		TOTAL
	Metro	Rural	Metro	Rural	Metro	Rural	
NSW	135	80	140	75	280	160	875
VIC	120	50	125	45	245	95	675
QLD	50	55	50	55	50	160	420
WA	75	30	75	30	150	60	420
SA	75	25	75	25	145	55	400
TAS	25	30	25	30	40	60	210
Total	750		750		1500		3000

The metropolitan and rural population ratios for each State were obtained by dividing the population of the Capital city of each State, and the remaining rural population, by the total population of the State.

Tasmania, having the smallest population, was used as a basis for calculating the relative population ratio of each State within the Australian population.

Age group data was estimated using the closest age range available from census data eg. the young driver group (less than 25 years old) was estimated by adding the 20-24 age group population with half of the 15-19 year old group population (only half of this group was used as the mean licensing age across all states is approximately 17 years of age).

2.2.2 Method of Interviewing

The questionnaire was converted by the market research company to their standard layout for efficient interviewing (see Appendix A). An initial pilot study was conducted to assess the 'quality' of the questions and to detect any possible problems with the questionnaire.

The process of interviewing the sample was as follows:

- clusters of eight addresses were randomly selected within each geographic region using CD ROM residential telephone number database
- within each cluster, where possible one male under 21 years old, one female under 21, one male and one female 21-25 years old, and 2 males and 2 females 26-50 years old were interviewed.
- selected respondent was the youngest licensed car driver in the home who was under 51 years of age and had driven a car in the past month
- up to 2 callbacks made to achieve an interview
- all interviews conducted weekends and midweek evenings over a 3 week period.

2.3 SURVEY OF ACTIVE DRIVERS

2.3.1 Method of interviewing at RBT stations

The survey for active drivers was different to the residential survey as it was a self-administered questionnaire. The content was also slightly different as the questions pertaining to the particular trip being undertaken replaced the residential survey questions which were about driving in general.

The method of interviewing was as follows:

- interviewers contacted the 'Booze Bus' directly, or the Traffic Alcohol Section (TAS) of Victoria Police to learn the exact location of the operation each evening
- important concerns were for the safety of the interviewers and that the interview process did not interfere with the RBT operations. Therefore, drivers were only approached when it was safe to do so and would not delay throughput of other traffic
- once a driver had passed the PBT (preliminary breath test) he/she was approached by the interviewer who identified him/herself and asked if the driver would be interested in completing a 5 minute questionnaire on road safety
- if the driver declined to participate, the interviewer stepped back from the car, and noted 'refusal' data - vehicle characteristics, age and sex of the driver and passengers (if any)

- if the driver agreed to participate, they were directed to a parking zone clear of the RBT operation where they were handed the questionnaire for completion and told to alert the interviewer, who remained close by the car, if they had any questions or problems
- on completing the questionnaire, the driver was thanked for their participation and given a road safety key ring.

2.4 EXPOSURE GROUPS

There were 2 main aims to consider when deciding on the best way to determine the driving exposure groups (daytime drivers and night-time drivers) for analysis. These were to:

- use as many of the respondents as possible in the analysis
- have independent (mutually exclusive) groups.

The following section describes the process by which the exposure groups were formed with the above aims in mind.

2.4.1 Measures of Exposure

Respondents were asked to give two measures of their driving exposure:

1. duration - minutes of driving during the previous seven days
2. distance - number of kilometres driven in the previous seven days.

Estimates of these measures were given for both daytime driving (6am-7pm) and night-time driving (7pm-6am).

Both duration and distance have been accepted as reliable measures of exposure. In the present study, however, duration of travel was used as the disaggregating variable. This was partly due to the metropolitan and rural split in the sample - it was found that rural respondents travelled further, on average, than their metropolitan counterparts per minute driven.

In deciding how to distinguish a 'daytime' and 'night-time' driver using a quantitative exposure measure, it is necessary to consider whether an *absolute* night-time exposure level should be attained, or whether a *relative* night-time vs. daytime ratio is necessary to be labelled a "night-time driver".

2.4.2 Night-time driving > Daytime driving

An obvious way to create a night-time driver group is to sort out the drivers who spent more time driving at night than during the day. This primary distinction immediately highlighted the low level of night-time driving compared to daytime driving in the sample. It was found that for the 3

age groups, only 12% (<21), 8% (21-25) and 4% (26-50) of the drivers drove more at night than during the day. The distinction was also problematic in that respondents who only drove slightly more at night eg. only 5 minutes more, were included as night-time drivers, as were the respondents who may have only driven for a few minutes for the whole week eg. no daytime driving and 5 minutes night-time driving. Is it valid to place these drivers in the same group as drivers who did a vast amount of driving, or a vast majority of their driving, at night?

2.4.3 Measures of Central Tendency

The three measures of central tendency - mean, median and mode - were all investigated for their ability to create valid and independent exposure groups if they were to be used as a 'cutoff' point for either day or night driver membership, that is, for example, classified as a night-time driver if he/she drove more than night mean, classified as a daytime driver if he/she drove more than the daytime mean etc.

MODE:

the mode proved to be the least suitable option due to the fact that it was zero for night exposure for all age groups, and zero for daytime exposure for the 2 younger age groups.

MEDIAN:

the median was also a poor option as it was extremely low, partly due to the number of respondents who did little or no driving during the day or night or both.

MEAN:

the mean was always higher than the mode and median and was therefore thought more likely to create a representative night group, as the cutoff point for membership was a greater duration of night-time exposure.

For all age groups, approximately two thirds of respondents drove less than the day mean. Two thirds also drove less than the night mean for all age groups. This demonstrates that the means are affected somewhat by the extreme values in the distribution.

The process of calling an above average night-time exposure driver a 'night-time driver' (and conversely an above average daytime exposure driver a 'daytime driver') does not control for the level of both day and night driving. That is, a respondent may have driven more than the night average, but also more than the day average. Thus, these groups are not mutually exclusive.

This problem is solved by creating groups using both means as follows:

To qualify as a night-time driver, a respondent must have driven more than the night mean *and* less than the day mean. Daytime drivers must have driven more than the day mean and less than the night mean. These distinctions created groups comprising 13%, 16% and 12% of the age groups as night-time drivers and 15%, 14% and 18% of the 3 age groups as daytime drivers. Therefore only approx. 30% of the sample would be used in analysis using these groups.

Further, this distinction is complicated by the mean day minutes driven being much greater than the mean night minutes driven for all age groups, allowing a driver qualifying as a night-time driver to drive more during the day than at night. eg. Driver X drove more than the night mean (150 minutes, more than the mean of 121) and less than the day mean (320 minutes, less than the mean of 327). [The converse cannot happen for the day drivers as they drive above the day mean and below the night mean - the day mean is always greater than the night mean, making an overlap impossible].

This night group can be further divided to cancel the overlap ie. night drivers that (i) drive more at night, and (ii) drive more during the day. The former group is particularly small - 7%, 5% and 3% of the age groups. However, it does seem to be the theoretically most distinct type of night driver - one that drives more than the night mean, less than the day mean and more at night than during the day. The latter group comprises 8%, 9% and 15% of the age groups.

2.4.4 Other Methods

Night driving proportional to day driving:

Arbitrarily decide on a minimum proportional difference between a respondent's day and night driving exposure in order to be included in the night or day group. The size of the proportion would not be empirically supported. The smaller proportions create larger (in terms of numbers) but less diverse (in terms of day vs night exposure) groups. Conversely, the bigger proportions create very small, but more diverse, groups.

Top and bottom quartiles or thirds of sample:

Take the extreme quarters or thirds of the sample for night and day exposure to create 'least exposed' and 'most exposed' groups. This, however, does not control for the relative levels of both day and night exposure for each respondent, resulting in membership in both groups ie. high exposure day and high exposure night or low exposure day and low exposure night.

2.4.5 Resultant Groups

It soon became clear that restricting the analysis to one "daytime" vs one "night-time" group would be too restrictive given the small numbers of which these groups consisted. There remained a large proportion of the sample 'in limbo'. There was also no obviously empirically 'better' definition of a night-time driver - the night-time group options did not produce homogeneous samples.

It was decided to keep the group which drove more than the night mean and less than the day mean. The converse day group was also kept. The night group would, however, be split into those who drove more during the night and those who drove more during the day. A high exposure group - those who drove more than both the night and day average were thought to be an interesting group of their own. The converse, a low exposure group (less than both the night and day mean) was also created. This group consists of drivers who drove more during the day than at night, to make it comparable to the day group. All of these groups are mutually exclusive. They also use the majority of the sample - 2805 of the 3008 respondents (93%).

From this process, five exposure groups were produced, namely:

- **Daytime (D) Group**, - those who drove *more* than the daytime average and *less* than the nighttime average.
- **Nighttime (N, d>n) Group 1**, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *more* of their driving during the day.
- **Nighttime (N, n>d) Group 2**, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *less* of their driving during the day.
- **High Exposure (HE) Group**, - those who drove *more* than the daytime average and *more* than the nighttime average.
- **Low Exposure (LE) Group**, - those who drove *less* than the daytime average and *less* than the nighttime average.

3.0 RESULTS

3.1 SAMPLE INFORMATION

Basic sample information is presented in Table 3.1.

TABLE 3.1
SAMPLE STRUCTURE INCLUDING AGE, SEX, STATE
AND METROPOLITAN/RURAL VARIABLES

	Under 21		21-25		26-50		Total
	Metro	Rural	Metro	Rural	Metro	Rural	
NSW	136	79	139	74	291	161	880
VIC	114	50	133	46	243	95	681
QLD	50	55	50	54	50	161	420
WA	75	29	76	29	147	61	417
SA	74	24	76	25	146	55	400
TAS	25	30	25	30	40	60	210
Total	474	267	499	258	917	593	3008

3.1.1 Age

The total sample comprised 3008 respondents. Respondents in the youngest age group were the most difficult to locate for questioning, thus the quota of 750 was not quite obtained (n=741). Slightly more 21-25 year old subjects were sampled than the quota (n=757), as with the 26-50 year old group (n=1510).

3.1.2 Sex

It was intended that the male/female ratio equal 50:50. This was virtually achieved, as of the entire sample, 1500 respondents (49.9%) were male and 1508 (50.1%) were female. The under 21 years age group comprised 371 males and 370 females; the 21-25 age group 380 males and 377 females; and the 26-50 age group 749 males and 761 females.

3.1.3 Metropolitan/Rural

Of the 3008 respondents, 1890 (62.8%) were from metropolitan areas (ie. Capital cities). The remaining 1118 respondents (37.2%) were from rural areas. Statewide quotas were met for all States except Western Australia (417 of the 420). The number of respondents from Victoria and New South Wales were slightly above the quota.

3.1.4 Summary

As can be seen from the above, the random sample produced from interviewing was very close to that specified in advance. Only the youngest age group quota was not obtained, however only by a very small number. The 50:50 male/female ratio was practically achieved, as were the metropolitan/rural ratios in each State.

3.2 EXPOSURE GROUPS

In this section, exposure group descriptive analysis tables are presented with frequencies and column percentages. Column percentages are presented as they allow easier comparisons amongst the groups, given that they have substantially different sizes. Of most interest in this chapter, however, is the proportional over- or under-involvement, if any, of the night drivers ($N(d>n)$ and $N(n>d)$) on each variable. Over- or under-involvement can be determined by comparing the proportion of subjects responding in a certain way that were night drivers, with the proportion of the total sample within each age range that were night drivers. The night groups are combined for the purposes of these calculations. Unless otherwise stated, the nighttime groups make up the following proportions of the age group sample sizes:

- <21 - 13%
- 21-25 - 17%
- 26-50 - 11%

3.3 DEMOGRAPHICS

3.3.1 Sex of Exposure Group Members

Table 3.2 shows the gender breakdown of the five exposure groups. The overall pattern shows generally more males than females in the groups, especially in HE. The imbalance is countered in LE, the only exposure group to comprise more females than males for each age group. These results give a degree of support to the validity of the exposure group disaggregations, as it is known that males tend to have higher amounts of driving exposure than females.

TABLE 3.2
SEX OF EXPOSURE GROUP MEMBERS

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	77	54.5%	16	50.9%	27	83.9%	92	65.4%	112	39.8%	324	50.2%
Female	64	45.5%	16	49.1%	23	45.1%	49	34.6%	169	60.2%	321	49.8%
Total	141	100%	32	100%	50	100%	141	100%	281	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	63	56.7%	36	46.0%	28	61.1%	113	74.0%	120	38.2%	358	61.1%
Female	50	44.3%	42	54.0%	16	38.9%	40	26.0%	194	61.8%	342	48.9%
Total	113	100%	78	100%	42	100%	153	100%	314	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	150	53.6%	65	54.9%	20	55.3%	159	66.2%	319	41.6%	713	49.4%
Female	130	46.4%	54	45.1%	16	44.7%	81	33.8%	449	58.4%	730	50.6%
Total	280	100%	119	100%	36	100%	240	100%	768	100%	1443	100%

3.3.2 Marital Status

The expected pattern of marriage and de facto relationships being more common with age was attained. A pattern also emerged regarding night drivers. Night drivers in the youngest age group accounted for only 1.8% (1/57) of those respondents who were married or in a de facto relationship, despite being 13% (82/643) of the total sample. Similarly in the 21-25 age range, only 8.7% (20/230) of those who were in one of the above relationships were night drivers who were 17% (121/700) of the total sample. This trend was evident in the 26-50 age range, however to a smaller degree - again 8.7% of those married or in a de facto relationship were night drivers, who were 11% of the total sample.

TABLE 3.3
PROPORTION OF EXPOSURE GROUP MEMBERS MARRIED OR IN A DE FACTO RELATIONSHIP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	11	7.8%	0	0.0%	1	2.4%	13	9.3%	32	11.3%	57	8.9%
No	129	82.2%	32	100.0%	49	97.6%	128	90.7%	248	88.7%	586	91.1%
Total	140	100%	32	100%	50	100%	141	100%	280	100%	643	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	45	39.9%	10	13.3%	10	22.4%	45	29.6%	120	38.3%	230	32.9%
No	68	60.1%	68	86.7%	33	77.6%	107	70.6%	194	61.7%	470	67.1%
Total	113	100%	78	100%	43	100%	152	100%	314	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	229	81.9%	76	63.5%	21	67.6%	161	67.0%	622	80.9%	1109	76.8%
No	50	18.1%	43	36.5%	16	42.4%	79	33.0%	144	18.7%	332	23.0%
Not know	0	0.0%	0	0.0%	0	0.0%	0	0.0%	3	0.4%	3	0.2%
Total	279	100%	119	100%	37	100%	240	100%	769	100%	1444	100%

3.3.3 Children

Table 3.4 shows the proportion of respondents in each exposure group who had children under 12 years of age. The upper limit on the age of children was set at 12 to reduce the bias of this question to the oldest age group. There was no interest in subjects who had teenage or adult children as there would be no comparison group in the younger age ranges.

TABLE 3.4

PROPORTION OF EXPOSURE GROUP MEMBERS WITH CHILDREN UNDER 12 YEARS OF AGE

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	7	5.1%	0	0.0%	2	4.8%	7	4.7%	12	4.2%	28	4.4%
No	133	94.9%	32	100.0%	48	95.2%	135	95.3%	268	95.8%	616	95.6%
Total	140	100%	32	100%	50	100%	142	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	24	21.1%	6	7.7%	6	15.2%	24	15.9%	78	25.0%	138	19.8%
No	89	78.9%	72	92.3%	36	84.8%	128	84.1%	235	75.0%	560	80.2%
Total	113	100%	78	100%	42	100%	152	100%	313	100%	698	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	160	57.4%	45	37.9%	10	27.6%	121	50.4%	419	64.5%	755	52.3%
No	118	42.2%	74	62.1%	27	72.4%	119	49.6%	347	45.2%	685	47.6%
Not know	1	0.4%	0	0.0%	0	0.0%	0	0.0%	2	0.3%	3	0.2%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

This variable displays similar patterns to those of marriage/de facto. That is, the night drivers in the youngest age range are proportionally under-involved in the group with children - they account for only 7.1% (2/28) of those respondents with children and 13% of the age group total. The 21-25 night drivers comprise 8.7% (12/138) of those with children and 17% of the age group sample. Again, there was a similar pattern, but smaller proportion, of under-involvement of night drivers in the 26-50 age group - 7.3% (55/755) of those with children and 11% of the age group sample. Obviously, the proportion of respondents with children increased with age, and did so at a slower rate for the two night groups.

3.3.4 Mortgage

This is another variable where greater 'involvement' with age was expected. Very few respondents under 21 years old were paying a mortgage. Night drivers were also proportionally under-involved in this age group - 4.7% (1/21) of those paying a mortgage were night drivers who comprise 13% of the age group total. There was no under- or over-involvement of the night drivers in the other two age groups.

TABLE 3.5

PAYMENT OF MORTGAGE BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	5	3.9%	1	3.7%	0	0.0%	3	2.2%	12	4.2%	21	3.3%
No	135	96.1%	31	96.3%	50	100.0%	138	97.8%	266	96.8%	622	96.7%
Total	140	100%	32	100%	50	100%	141	100%	280	100%	643	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	23	19.9%	15	18.9%	5	11.1%	22	14.6%	53	16.9%	118	16.8%
No	91	80.1%	63	81.1%	38	88.9%	130	85.4%	261	83.1%	583	83.2%
Total	114	100%	78	100%	43	100%	152	100%	314	100%	701	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	136	48.7%	52	43.5%	14	38.3%	96	40.0%	342	44.4%	640	44.3%
No	139	49.8%	67	56.5%	23	61.7%	144	59.8%	422	54.9%	795	56.0%
Not know	4	1.5%	0	0.0%	0	0.0%	1	0.3%	5	0.7%	10	0.7%
Total	279	100%	119	100%	37	100%	241	100%	769	100%	1445	100%

3.3.5 Rent/Board

Table 3.6 shows that, overall, the 21-25 year old group were the most likely to be paying either rent or board. There was no substantial proportional over- or under-involvement for this variable for any age group, however the 26-50 year old night drivers were slightly over-involved - 14.2% (68/478) of those paying rent or board compared to comprising 11% of the age group total.

TABLE 3.6

PAYMENT RENT OR BOARD BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	74	62.6%	17	51.9%	22	43.8%	75	53.2%	123	44.0%	311	48.2%
No	67	47.4%	16	48.1%	28	56.2%	66	46.8%	157	56.0%	334	51.8%
Total	141	100%	33	100%	50	100%	141	100%	280	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	82	72.3%	47	60.4%	31	73.2%	107	70.1%	228	72.8%	495	70.8%
No	31	27.7%	31	39.6%	11	26.8%	46	29.9%	85	27.2%	204	29.2%
Total	113	100%	78	100%	42	100%	153	100%	313	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	78	28.1%	47	38.3%	21	56.7%	91	37.8%	241	31.4%	478	33.1%
No	198	70.8%	72	60.7%	16	43.3%	150	62.2%	523	58.1%	959	66.4%
Not known	3	1.1%	0	0.0%	0	0.0%	0	0.0%	4	0.5%	7	0.5%
Total	279	100%	119	100%	37	100%	241	100%	768	100%	1444	100%

3.3.6 Education

Secondary education was the most common level of education overall for each of the age groups. The inflated figure for secondary education in the youngest age range compared to the 21-25 age group can be attributed to the fact that some respondents were yet to complete tertiary or trade education, although they may have started. The proportion of tertiary and trade educated respondents increases for all exposure groups in the 21-25 year old age group.

Night drivers in the <21 age group (13% of the age group total) are proportionally under-involved in the group with trade or technical education - 4.2% (3/72). There was no substantial over- or under-involvement for the night groups regarding any form of education for the other two age groups.

TABLE 3.7
THE HIGHEST LEVEL OF EDUCATION ACHIEVED BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Secondary	88 61.1%	24 74.0%	41 80.0%	94 66.4%	198 76.5%	443 60.0%
University/tertiary	26 18.6%	8 24.0%	7 14.4%	26 18.2%	59 23.0%	126 17.0%
Trade/technical college	27 19.3%	1 2.8%	2 4.0%	22 15.3%	20 7.2%	72 9.7%
Other	1 0.8%	0 0.0%	0 0.0%	0 0.0%	4 1.3%	5 0.7%
Total	140 100%	33 100%	50 100%	142 100%	281 100%	646 100%

Driver age: 21-25 years (n=757)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Secondary	59 51.7%	29 36.8%	27 62.8%	64 42.3%	179 56.9%	358 51.8%
University/tertiary	28 25.5%	32 40.8%	10 22.7%	45 29.3%	92 29.3%	208 29.8%
Trade/technical college	26 22.8%	16 22.5%	6 14.5%	41 27.2%	41 13.1%	132 18.8%
Other	0 0.0%	0 0.0%	0 0.0%	2 1.2%	2 0.7%	4 0.6%
Total	114 100%	79 100%	43 100%	152 100%	314 100%	702 100%

Driver age: 26-60 years (n=1510)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Secondary	145 51.9%	60 60.5%	22 60.7%	116 48.3%	447 54.1%	792 54.9%
University/tertiary	75 26.9%	42 35.4%	10 26.6%	67 28.0%	182 23.7%	376 26.1%
Trade/technical college	50 17.8%	16 13.5%	5 12.7%	51 21.4%	122 15.9%	244 16.8%
Other	8 3.0%	1 0.6%	0 0.0%	4 1.8%	15 1.9%	28 1.9%
Not known	1 0.4%	0 0.0%	0 0.0%	0 0.0%	2 0.3%	3 0.2%
Total	279 100%	119 100%	37 100%	240 100%	768 100%	1443 100%

3.3.7 Occupation

The shaded squares in Table 3.8 indicate the three most common occupations for each exposure group. Descriptions and examples of the occupation headings are in Appendix B. Full-time student was the most common occupation for the <21 age group. LE had the highest unemployment rate in this age group which was in fact third in frequency behind student and lower white collar (this group comprises 43% of the age group total and 57% of those unemployed). The night drivers in this age group are very slightly over-involved in the group of lower white collar workers - 16% (24/150) and 13% of the age group total.

For the 21-25 age group, lower white collar and skilled trades were the two most common occupations. Night drivers (17% of the age group) are over-involved in the sample of full-time students - 23.6% (17/72) in this age group. Nn had the highest unemployment rate at 10%, despite the LE group accounting for more than 50% of those respondents who were unemployed. Lower white collar jobs and skilled trades were again prevalent occupations for each exposure group within the 26-50 year old age range. Home duties were more common in this age group than the two younger groups. A slight over-involvement of night drivers (11% of the sample) continued for the full-time student population (15%). Night drivers were also over-involved in the medium level white collar (17%) and unemployed (16%) populations. The LE group (53% of the age group total) again accounted for the majority - 72% - of unemployed respondents .

TABLE 3.8

MAIN OCCUPATION BY AGE AND EXPOSURE GROUP

	Driver age: < 21 years (n=741)											
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Unskilled worker	7	5.1%	1	3.7%	2	4.8%	7	4.8%	13	4.7%	30	4.7%
Semi-skilled	18	12.9%	5	17.0%	4	7.4%	21	14.9%	25	9.0%	73	11.4%
Skilled tradesperson	24	17.2%	2	5.8%	6	12.4%	34	24.4%	18	6.4%	84	13.1%
Lower White Collar	37	26.5%	12	37.1%	12	23.1%	26	18.2%	63	22.6%	150	23.4%
Unemployed	6	4.2%	2	7.4%	5	9.2%	12	8.5%	33	11.9%	58	9.1%
Pensioner	1	0.9%	0	0.0%	0	0.0%	0	0.0%	2	0.6%	3	0.5%
Full-time student	45	32.3%	9	29.0%	18	35.7%	38	27.1%	114	40.6%	224	35.0%
Home Duties	0	0.0%	0	0.0%	2	4.8%	2	1.3%	10	3.7%	14	2.2%
Refused	1	0.9%	0	0.0%	1	2.4%	1	0.8%	1	0.5%	4	0.6%
Total	139	100%	31	100%	50	100%	141	100%	279	100%	640	100%

TABLE 3.8 (cont'd)

MAIN OCCUPATION BY AGE AND EXPOSURE GROUP

	Driver age: 21-25 years (n=757)											
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Unskilled worker	5	4.8%	1	0.8%	5	11.4%	14	9.4%	17	5.3%	42	6.0%
Semi-skilled	9	7.7%	3	3.9%	5	11.4%	15	10.1%	21	6.8%	53	7.6%
Skilled tradesperson	31	27.3%	17	22.2%	7	16.1%	40	26.1%	43	13.8%	138	19.7%
Lower White Collar	40	35.6%	31	39.8%	16	37.6%	53	34.5%	130	41.6%	270	38.6%
Collar	6	4.9%	5	6.1%	0	0.0%	8	5.5%	10	3.1%	29	4.1%
Unemployed	6	5.3%	3	3.9%	4	10.0%	8	5.5%	23	7.2%	44	6.3%
Pensioner	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Full-time student	5	4.2%	13	17.0%	4	9.8%	11	7.3%	39	12.4%	72	10.3%
Home Duties	12	10.2%	5	6.3%	2	3.8%	1	0.9%	28	8.9%	48	6.9%
Refused	0	0.0%	0	0.0%	0	0.0%	1	0.8%	2	0.6%	3	0.4%
Total	114	100%	78	100%	43	100%	151	100%	314	100%	700	100%

TABLE 3.8 (cont'd)

MAIN OCCUPATION BY AGE AND EXPOSURE GROUP

	Driver age: 26-50 years (n=1510)											
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Unskilled worker	14	5.0%	5	4.1%	1	3.2%	15	6.1%	47	6.1%	82	5.7%
Semi-skilled	32	11.6%	17	14.4%	4	10.5%	38	15.6%	66	8.6%	157	10.9%
Skilled tradesperson	59	21.1%	16	13.3%	7	19.4%	54	22.4%	119	15.4%	255	17.7%
Lower White Collar	101	36.0%	46	38.9%	13	35.7%	84	34.9%	235	30.6%	479	33.2%
Collar	18	6.3%	9	7.8%	5	14.9%	15	6.2%	36	4.7%	83	5.8%
Upper White Collar	2	0.6%	0	0.0%	0	0.0%	4	1.5%	6	0.7%	12	0.8%
Unemployed	3	1.2%	3	2.6%	4	9.7%	2	0.9%	31	4.1%	43	3.0%
Pensioner	5	1.8%	6	5.0%	1	3.3%	3	1.3%	7	1.0%	22	1.5%
Retired	2	0.9%	0	0.0%	0	0.0%	1	0.5%	8	1.0%	11	0.8%
Full-time student	2	0.7%	2	1.6%	0	0.0%	4	1.5%	5	0.7%	13	0.9%
Home Duties	39	14.1%	12	10.3%	0	0.0%	21	8.6%	201	26.1%	273	18.9%
Refused	2	0.9%	2	2.0%	1	3.3%	1	0.5%	7	1.0%	13	0.9%
Total	279	100%	118	100%	36	100%	242	100%	768	100%	1443	100%

3.3.8 Income

TABLE 3.9
ANNUAL INCOME OF EXPOSURE GROUP MEMBERS

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Under \$21,000	121	85.9%	29	88.4%	47	92.8%	122	86.0%	252	89.9%	571	88.4%
\$21,000-\$41,000	15	10.7%	3	9.5%	1	2.4%	20	14.0%	16	5.8%	56	8.5%
Over \$41,000	0	0.0%	0	0.0%	1	2.4%	0	0.0%	1	0.4%	2	0.3%
Refused	5	3.4%	1	2.0%	1	2.4%	0	0.0%	11	3.8%	18	2.8%
Total	141	100%	33	100%	50	100%	142	100%	280	100%	646	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Under \$21,000	37	32.4%	42	54.0%	19	45.3%	61	40.3%	192	61.3%	351	50.2%
\$21,000-\$41,000	68	60.5%	34	43.6%	22	51.9%	81	53.2%	106	33.6%	311	44.5%
Over \$41,000	5	4.4%	0	0.0%	1	2.8%	7	4.5%	9	2.8%	22	3.1%
Refused	3	2.7%	2	2.4%	0	0.0%	3	2.0%	7	2.3%	15	2.1%
Total	113	100%	78	100%	42	100%	152	100%	314	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Under \$21,000	90	32.4%	38	32.0%	16	43.6%	62	26.0%	352	45.8%	558	38.6%
\$21,000-\$41,000	116	41.7%	55	46.5%	16	42.9%	116	48.2%	297	38.6%	600	41.6%
Over \$41,000	45	16.0%	21	17.4%	5	13.5%	50	20.8%	63	8.2%	184	12.7%
Refused	28	10.0%	5	4.1%	0	0.0%	13	5.2%	56	7.3%	102	7.1%
Total	279	100%	119	100%	37	100%	241	100%	768	100%	1444	100%

The most common income bracket for the two young age groups is <\$21,000, and \$21-41,000 for the oldest age group. Very few respondents in the younger age groups earn over \$41,000. Night drivers in the <21 age group are proportionally under-involved in the \$21-41,000 income bracket (7.3%). 21-25 year old night drivers (17% of the age group total) are proportionally under-involved in the over \$41,000 income bracket (4.5%). There was no sizeable over- or under-involvement of night drivers for income in the 26-50 age group.

3.3.9 Smoking

TABLE 3.10
SMOKING BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	50	35.6%	7	23.2%	20	39.9%	53	37.3%	57	20.2%	187	29.0%
No	90	64.4%	25	76.8%	30	60.1%	89	62.7%	223	79.8%	457	71.0%
Total	140	100%	32	100%	50	100%	142	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	50	44.2%	26	33.2%	20	48.0%	74	48.8%	126	40.2%	296	42.3%
No	63	55.8%	52	66.8%	22	52.0%	78	51.2%	188	59.8%	403	57.7%
Total	113	100%	78	100%	42	100%	152	100%	314	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	99	35.6%	42	35.2%	11	30.6%	85	35.5%	243	31.7%	480	33.3%
No	180	64.5%	77	64.8%	26	69.4%	155	64.5%	524	68.2%	962	66.7%
Not know	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

The 21-25 age group had the highest overall proportion of members who smoked. The Nd and LE groups in the two younger age groups had the lowest proportions of members who smoked. However, there was no over- or under-involvement of the night drivers in the sample of drivers that smoked, in any age range.

3.3.10 Second Language

TABLE 3.11

USE OF A SECOND LANGUAGE APART FROM ENGLISH AT HOME
BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	18	12.0%	1	2.0%	4	8.5%	25	17.4%	32	11.8%	80	12.4%
No	122	87.2%	32	98.0%	46	91.5%	117	82.0%	248	88.4%	565	87.6%
Total	140	100%	33	100%	50	100%	142	100%	280	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	17	14.9%	21	26.5%	10	22.8%	32	20.9%	32	10.2%	112	16.0%
No	96	85.1%	56	73.5%	33	77.2%	121	79.1%	282	89.8%	590	84.0%
Total	113	100%	79	100%	43	100%	153	100%	314	100%	702	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	47	17.0%	21	17.3%	6	16.7%	41	17.0%	118	15.4%	233	18.1%
No	232	83.0%	98	82.7%	31	83.3%	199	83.0%	650	84.6%	1210	83.9%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

This variable showed an unusual pattern of results in that the youngest night drivers were considerably under-represented, and the 21-25 year old night drivers were over-represented in the sample of drivers that spoke a second language at home (6.3% and 27.7% of these groups respectively).

The 26-50 year old drivers, in comparison, showed no over- or under-representation.

3.3.11 Participation in Sport

TABLE 3.12

PARTICIPATION IN ORGANISED SPORTS BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	68	48.5%	19	58.1%	25	50.2%	79	56.2%	131	46.7%	322	50.0%
No	72	51.5%	13	38.8%	25	49.8%	62	43.8%	148	53.0%	320	49.7%
Not known	0	0.0%	1	2.0%	0	0.0%	0	0.0%	1	3.2%	2	0.3%
Total	140	100%	33	100%	50	100%	141	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	46	46.7%	41	52.6%	23	53.2%	60	52.7%	129	41.2%	319	45.6%
No	67	53.3%	37	47.4%	20	46.8%	71	48.9%	184	58.8%	379	54.2%
Not known	0	0.0%	0	0.0%	0	0.0%	1	0.4%	0	0.0%	1	0.1%
Total	113	100%	78	100%	43	100%	152	100%	313	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	100	35.8%	40	33.7%	16	43.8%	104	43.3%	251	32.6%	511	35.4%
No	179	64.2%	79	66.3%	21	57.0%	136	56.7%	518	67.4%	833	64.6%
Total	279	100%	119	100%	37	100%	240	100%	769	100%	1444	100%

Overall, a higher proportion of young drivers participated in organised sports than older drivers. The night groups and HE group tended to have a higher participation rate than the day or LE drivers.

Night drivers were slightly over-represented in the group participating in organised sports - 20.1% of this group.

3.4 CHARACTERISTICS OF VEHICLE

3.4.1 Regular Access to a Vehicle

It can be seen from the table (Table 3.13) that at least 90% of the members of all exposure groups in each age range had regular access to a vehicle. It can be assumed, therefore, that the lack of opportunity to drive did not affect the actual amount of driving exposure for any group.

TABLE 3.13

REGULAR ACCESS TO A VEHICLE BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	136	96.8%	32	100.0%	47	93.8%	140	99.2%	262	93.4%	617	95.7%
No	5	3.4%	0	0.0%	3	6.2%	1	0.8%	19	6.6%	28	4.3%
Total	141	100%	32	100%	50	100%	141	100%	281	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	113	100.0%	78	100.0%	41	97.1%	151	98.8%	310	98.6%	690	99.0%
No	0	0.0%	0	0.0%	1	2.9%	2	1.2%	4	1.4%	7	1.0%
Total	113	100%	78	100%	42	100%	153	100%	314	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	277	99.1%	118	99.0%	35	94.9%	240	99.7%	756	98.4%	1426	96.7%
No	2	0.9%	1	1.0%	2	5.1%	1	0.3%	13	1.6%	19	1.3%
Total	279	100%	119	100%	37	100%	241	100%	769	100%	1445	100%

3.4.2. Age of car

Table 3.14 shows the average age of cars driven by respondents in each of the exposure groups.

TABLE 3.14

AVERAGE AGE OF CAR USUALLY DRIVEN BY MEMBERS OF EACH EXPOSURE GROUP

	Exposure Group					
	D	Nd	Nn	HE	LE	Total
<21	11.26	13.18	12.95	11.71	10.24	11.14
21-25	10	10.62	9.13	9.58	10.7	10.25
26-50	8.21	9.11	9.84	8.82	9.12	8.91

Overall, the <21 age group drivers drove the oldest cars on average. Of the youngest drivers, the night drivers drove the oldest cars on average. There was little difference between the exposure groups for the other two age groups. The 26-50 year old respondents drove the youngest cars of the three age groups.

3.4.3 Insurance

TABLE 3.15

**TYPE OF INSURANCE COVER ON VEHICLE USUALLY DRIVEN
BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Comprehensive	63	44.9%	13	40.6%	23	45.8%	63	44.8%	140	90.0%	302	48.9%
Third party	47	33.3%	11	32.6%	13	25.8%	44	31.3%	94	59.4%	209	32.5%
Third party property	26	18.7%	9	26.9%	14	27.0%	26	18.7%	36	13.7%	113	17.9%
Other	4	3.0%	0	0.0%	1	1.3%	5	3.4%	4	1.5%	14	2.2%
None	0	0.0%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	1	0.2%
Don't know	0	0.0%	0	0.0%	0	0.0%	1	0.8%	4	1.3%	5	0.8%
Total	140	100%	33	100%	51	100%	140	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Comprehensive	66	57.6%	50	64.3%	29	47.3%	90	63.0%	166	63.5%	408	58.2%
Third party	32	27.8%	15	19.0%	7	17.0%	31	20.2%	102	32.4%	187	26.7%
Third party property	13	11.8%	11	14.3%	7	15.7%	24	15.5%	35	11.1%	90	12.8%
Other	3	2.7%	2	2.4%	0	0.0%	2	1.2%	7	2.3%	14	2.0%
Don't know	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.8%	2	0.3%
Total	113	100%	78	100%	43	100%	153	100%	314	100%	701	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Comprehensive	168	76.8%	87	79.4%	29	81.8%	175	72.8%	527	66.6%	1010	76.8%
Third party	55	19.7%	19	15.9%	7	20.3%	32	13.4%	146	19.3%	281	18.1%
Third party property	23	8.1%	12	9.7%	5	14.9%	22	9.0%	75	9.8%	137	9.5%
Other	4	1.3%	1	1.0%	1	3.3%	9	3.8%	17	2.3%	32	2.2%
None	0	0.0%	0	0.0%	0	0.0%	2	1.0%	0	0.0%	2	0.1%
Total	280	100%	119	100%	38	100%	240	100%	787	100%	1442	100%

Overall, drivers <21 years old are least likely to have comprehensive car insurance. Within this age range, night drivers are proportionally over-represented in the group with third party property insurance only (20.4%). This finding is not consistent in the 21-25 age group, whose night drivers were proportionally under-represented in the group with third party insurance only (11.8%). There were no cases of over- or under representation for night drivers for any type of insurance in the oldest age group.

3.4.4 Modifications to Car

Table 3.16 is a collapsed table displaying the proportion of respondents in each exposure group that did or did not drive a modified vehicle. A table showing the type of modifications made can be seen in Appendix C.

TABLE 3.16

**PROPORTION OF RESPONDENTS DRIVING A MODIFIED CAR
BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	22	15.8%	7	22.5%	9	18.3%	35	24.0%	29	10.5%	102	15.8%
No	118	84.2%	25	78.5%	41	81.7%	107	76.0%	251	89.5%	542	84.2%
Total	140	100%	32	100%	50	100%	142	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	17	15.0%	12	14.8%	8	21.1%	33	22.1%	50	16.7%	120	17.1%
No	96	85.0%	67	86.2%	33	78.9%	119	77.9%	265	84.3%	580	82.9%
Total	113	100%	79	100%	41	100%	152	100%	315	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	27	8.6%	7	6.1%	4	10.1%	27	11.3%	62	8.2%	127	8.8%
No	253	90.8%	112	83.9%	33	89.9%	213	88.7%	706	91.8%	1317	91.1%
Missing	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	1	0.1%
Total	280	100%	119	100%	37	100%	240	100%	769	100%	1445	100%

Modifications to vehicles were almost twice as common in the younger age groups than for the 26-50 year old drivers. There was a slight over-representation of night drivers in the sample who had modifications in the youngest age group (15.7%). This was not apparent in the other two age groups.

3.4.5 Personalised Registration Plates

TABLE 3.17

PROPORTION OF RESPONDENTS DRIVING CARS WITH A PERSONALISED REGISTRATION PLATE BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	8	5.6%	3	10.8%	4	7.2%	8	5.9%	15	5.2%	38	5.9%
No	132	94.4%	29	89.2%	47	92.8%	133	94.1%	266	94.8%	607	94.1%
Total	140	100%	32	100%	51	100%	141	100%	281	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	9	7.6%	8	9.9%	4	10.1%	12	7.7%	14	4.5%	47	6.7%
No	105	92.4%	71	90.1%	38	89.9%	141	92.3%	300	95.5%	655	93.3%
Total	114	100%	79	100%	42	100%	153	100%	314	100%	702	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Yes	22	7.9%	10	8.3%	1	3.3%	18	7.7%	45	5.9%	96	6.7%
No	257	92.1%	109	91.7%	36	96.7%	222	92.3%	723	94.1%	1347	93.3%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

For the two younger age groups, there was a proportional over-representation of night drivers with personalised registration plates - 18.4% in the youngest age group and 25.5% in the 21-25 age range. This over-representation of night drivers was not found in the oldest age group.

3.4.6 Servicing of Car

TABLE 3.18

**HOW RESPONDENTS USUALLY HAD THEIR CAR SERVICED
BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Self	27	19.4%	2	7.0%	11	20.9%	40	28.1%	41	14.7%	121	16.8%
Friend/relative	37	26.1%	10	31.4%	15	29.9%	34	23.8%	63	22.8%	159	24.7%
Garage/workshop /service station	76	64.0%	19	59.6%	22	44.4%	64	45.2%	172	61.4%	353	54.8%
Doesn't get serviced	1	0.5%	1	2.1%	2	4.8%	3	2.4%	2	0.9%	9	1.4%
Don't know	0	0.0%	0	0.0%	0	0.0%	1	0.5%	1	0.4%	2	0.3%
Total	141	100%	32	100%	50	100%	142	100%	279	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Self	24	21.6%	15	19.8%	6	14.4%	57	37.4%	61	19.4%	163	23.3%
Friend/relative	18	15.5%	17	21.8%	10	23.0%	26	17.0%	85	27.1%	166	22.3%
Garage/workshop /service station	71	63.0%	46	68.6%	27	62.6%	68	44.8%	163	51.9%	375	63.6%
Doesn't get serviced	0	0.0%	0	0.0%	0	0.0%	1	0.8%	4	1.4%	5	0.7%
Don't know	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Total	113	100%	78	100%	43	100%	152	100%	314	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Self	57	20.4%	18	15.4%	10	28.0%	55	22.9%	151	19.6%	291	20.2%
Friend/relative	42	14.9%	20	16.6%	3	7.0%	21	8.7%	129	16.8%	215	14.9%
Garage/workshop /service station	178	63.8%	80	67.0%	24	66.0%	162	67.4%	485	63.2%	929	64.4%
Doesn't get serviced	2	0.9%	1	1.0%	0	0.0%	2	1.0%	3	0.4%	8	0.6%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

In the two younger age groups, a greater proportion of HE drivers serviced their car themselves compared to the other groups. Very few Nd drivers serviced their own car in the <21 age group, however there was no under-representation for night drivers on this variable. In the 21-25 age range, night drivers were slightly under-represented in the group that serviced their car themselves (12.9%).

In the 26-50 age group, the proportion of HE drivers servicing their own car was lower than that of the younger HE groups, however it remained relatively high. There was no over- or under-representation for night drivers in this age group on any response.

3.4.7 Washing of Car

TABLE 3.19

FREQUENCY OF WASHING OF CAR BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D	N (d=n)	N (n=d)	HE	LE (d)	Total						
Weekly	27	18.4%	5	18.8%	9	18.3%	44	31.1%	42	16.1%	127	16.7%
Fortnightly	34	34.1%	2	6.8%	11	23.8%	25	17.8%	53	18.8%	125	19.4%
Monthly	50	35.8%	11	34.7%	17	34.2%	41	28.9%	89	31.6%	208	32.3%
Every 2 to 3 months	22	16.3%	10	29.7%	9	17.3%	18	12.9%	59	21.1%	118	18.3%
Less often	6	4.4%	4	13.2%	4	7.4%	9	6.8%	31	11.1%	54	8.4%
Never	2	1.3%	0	0.0%	0	0.0%	4	2.8%	6	2.3%	12	1.9%
Total	141	100%	32	100%	50	100%	141	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

	D	N (d=n)	N (n=d)	HE	LE (d)	Total						
Weekly	21	18.8%	10	13.0%	10	35.4%	39	25.4%	45	14.4%	130	16.8%
Fortnightly	25	22.3%	13	17.1%	6	18.6%	36	23.8%	65	20.8%	147	21.1%
Monthly	44	38.0%	30	38.7%	9	29.3%	44	28.7%	93	29.7%	220	31.5%
Every 2 to 3 months	12	10.3%	16	20.2%	5	11.7%	17	11.4%	52	16.8%	102	14.8%
Less often	9	8.1%	5	7.0%	5	11.2%	12	8.0%	47	15.0%	76	11.2%
Never	2	1.7%	3	3.9%	1	2.8%	4	2.8%	11	3.5%	21	3.0%
Total	113	100%	77	100%	43	100%	152	100%	313	100%	692	100%

Driver age: 26-50 years (n=1510)

	D	N (d=n)	N (n=d)	HE	LE (d)	Total						
Weekly	58	30.8%	15	12.9%	9	34.0%	60	24.9%	120	14.7%	262	18.1%
Fortnightly	72	35.7%	18	14.8%	5	14.4%	42	17.3%	150	19.5%	267	18.8%
Monthly	79	38.2%	39	32.4%	8	22.1%	66	27.6%	254	33.1%	446	30.8%
Every 2 to 3 months	40	14.2%	27	22.3%	9	23.3%	40	16.7%	139	18.1%	265	17.8%
Less often	26	9.4%	19	15.8%	4	12.0%	27	11.2%	92	11.8%	168	11.8%
Never	5	1.9%	3	2.2%	1	3.7%	6	2.3%	13	1.7%	28	1.9%
Total	280	100%	121	100%	36	100%	241	100%	758	100%	1446	100%

Proportionally more HE drivers washed their car weekly compared to other exposure groups for the <21 and 26-50 age ranges, and are in fact proportionally over-represented for this response in both age groups (<21: 34.6% of 'weekly washers' and 22% of the age group total; 21-25: 30% of 'weekly washers' and 22% of the age group total). This over-representation is not applicable in the oldest age range.

There were no cases of over- or under-representation for night drivers for any response in any age group.

3.4.8 Waxing/Polishing of Car

TABLE 3.20

**FREQUENCY OF WAXING OR POLISHING OF CAR
BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D	N (>n)	N (n>d)	HE	LE (d)	Total
Weekly	6 4.2%	1 3.7%	4 7.6%	10 7.2%	5 1.8%	26 4.0%
Fortnightly	8 5.6%	0 0.0%	2 3.7%	5 3.6%	15 5.2%	30 4.8%
Monthly	15 10.8%	4 10.8%	5 10.1%	24 16.8%	29 10.6%	77 11.9%
Every 2 to 3 months	20 14.0%	4 12.8%	13 25.8%	21 14.8%	49 17.4%	107 16.5%
Less often	50 35.6%	13 40.0%	13 25.1%	29 20.5%	83 29.5%	188 28.1%
Never	42 29.9%	11 32.5%	14 27.9%	52 37.0%	100 35.6%	219 33.8%
Total	141 100%	33 100%	51 100%	141 100%	281 100%	647 100%

Driver age: 21-25 years (n=757)

	D	N (>n)	N (n>d)	HE	LE (d)	Total
Weekly	4 3.8%	0 0.0%	3 7.2%	7 4.3%	7 2.1%	21 3.0%
Fortnightly	6 5.4%	2 2.4%	3 8.2%	12 7.8%	14 4.6%	37 5.3%
Monthly	10 9.1%	9 10.9%	4 8.9%	27 17.4%	32 10.2%	82 11.7%
Every 2 to 3 months	11 9.7%	12 15.0%	6 14.2%	27 17.7%	46 14.7%	102 14.6%
Less often	43 38.1%	25 32.4%	18 42.0%	45 29.3%	111 35.3%	242 34.5%
Never	38 33.8%	31 39.3%	8 19.4%	36 23.5%	104 33.1%	217 31.0%
Total	112 100%	79 100%	42 100%	154 100%	314 100%	701 100%

Driver age: 26-50 years (n=1510)

	D	N (>n)	N (n>d)	HE	LE (d)	Total
Weekly	7 2.6%	4 3.6%	2 4.4%	11 4.5%	16 2.1%	40 2.8%
Fortnightly	12 4.4%	2 1.8%	0 0.0%	13 5.2%	22 2.9%	49 3.4%
Monthly	30 10.6%	6 5.2%	5 13.4%	36 15.1%	89 11.5%	168 11.5%
Every 2 to 3 months	35 12.6%	22 18.9%	9 24.7%	35 14.4%	109 14.2%	210 14.5%
Less often	98 35.2%	53 44.3%	7 20.1%	81 33.8%	326 42.4%	565 39.1%
Never	97 34.6%	32 26.5%	14 37.5%	65 26.9%	206 26.8%	414 28.7%
Total	279 100%	119 100%	37 100%	241 100%	768 100%	1444 100%

The proportions of drivers waxing or polishing their car weekly were quite small overall, therefore it was decided to combine weekly and fortnightly responses to this question. Also contributing to this decision was the fact that night drivers in the youngest and oldest age groups were proportionally over-represented in 'weekly' polishing, but proportionally under-represented in 'fortnightly' polishing. These results in effect cancelled each other out considering both a weekly and a fortnightly wax are quite regular. Once these figures were combined, however, there was no proportional over- or under-representation for night drivers in any age group.

Similar to 'washing of car', HE drivers tended to be over-represented in the weekly/fortnightly waxing or polishing of their cars. These results are not surprising as it could be expected that cars which are driven more often require more regular care in the form of washing and waxing.

3.5 CHARACTERISTICS OF DRIVING EXPOSURE

3.5.1 Work and Non-work Related Driving

In answering questions in this section, respondents were asked to distinguish between work-related driving (including commuting to and from work) and non-work related driving. It was not known to what extent these two types of driving are intrinsically qualitatively different, and therefore it was desirable to keep any distinctions separate.

The following tables show the proportion of daytime and night-time driving minutes that were spent driving for work purposes (including commuting to and from work).

a) Daytime

TABLE 3.21a

PROPORTION OF WORK RELATED AND NON-WORK RELATED DRIVING DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)						
	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	37%	29%	30%	36%	23%	29%
Non-work related	63%	71%	70%	64%	77%	71%

Driver age: 21-25 years (n=757)						
	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	48%	39%	31%	50%	34%	40%
Non-work related	52%	61%	69%	50%	66%	60%

Driver age: 26-50 years (n=1510)						
	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	54%	41%	31%	52%	32%	41%
Non-work related	46%	59%	69%	48%	68%	59%

The general trend is for drivers to do proportionally more work-related daytime driving as they get older. The D and HE drivers in the <21 age group did the greatest proportion of work-related driving on average, the night groups were next with almost identical proportions, and the LE drivers did the least amount of work-related daytime driving. This pattern continued for both the 21-25 and 26-50 age groups, except the Nd drivers did proportionally more work-related driving for the 21-25 and 26-50 age groups than the Nn.

b) Night-time

TABLE 3.21b

**PROPORTION OF WORK RELATED AND NON-WORK RELATED DRIVING
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	8%	21%	19%	13%	16%	14%
Non-work related	92%	79%	81%	87%	84%	86%

Driver age: 21-25 years (n=757)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	14%	17%	19%	19%	14%	16%
Non-work related	86%	83%	81%	81%	86%	84%

Driver age: 26-50 years (n=1510)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Work related	14%	21%	26%	25%	13%	18%
Non-work related	86%	79%	74%	75%	87%	82%

As would be expected, the proportions of work-related driving were lower overall for night-time driving compared to daytime driving. Apart from the low <21 year old HE figure, the Nn, Nd and HE groups had the higher proportions of work-related driving at night in each age range.

3.5.2 Whose car do you drive?

a) Non-work trips during the day

The <21 year old drivers had the lowest overall proportion for use of their own car, and the highest overall proportion for use of the family's car, for non-work trips during the day. Within this group, the night drivers were very slightly under-represented in the use of the family's car (9.9% c.f. a group representation of 12.7%). There was no evident proportional over- or under-representation for night drivers for the use of anyone's car in the other two age groups.

TABLE 3.22a

WHOSE CAR IS DRIVEN ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	81	84.8%	25	78.8%	28	55.8%	107	75.9%	125	44.6%	376	58.8%
Family	34	24.3%	6	18.7%	14	28.8%	19	13.4%	130	46.4%	203	31.7%
Company	0	0.0%	0	0.0%	0	0.0%	1	0.5%	1	0.4%	2	0.3%
Friends	1	0.8%	0	1.2%	0	0.0%	3	2.3%	8	3.0%	12	1.9%
Combination	0	0.0%	0	0.0%	0	0.0%	4	3.6%	3	1.2%	7	1.1%
Not applicable	14	10.0%	0	1.2%	8	15.7%	6	4.5%	12	4.4%	40	6.3%
Total	140	100%	31	100%	50	100%	140	100%	279	100%	640	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	81	72.0%	63	79.9%	24	55.5%	109	71.7%	217	68.1%	494	70.5%
Family	10	8.8%	9	11.0%	8	18.6%	13	8.7%	57	18.0%	97	13.8%
Company	6	4.9%	0	0.0%	2	5.7%	6	3.9%	1	0.4%	15	2.1%
Friends	3	2.7%	2	3.1%	1	1.6%	3	2.0%	12	3.8%	21	3.0%
Combination	0	0.0%	0	0.0%	0	0.0%	3	2.0%	1	0.4%	4	0.6%
Not applicable	13	11.7%	5	6.1%	8	18.6%	18	11.6%	26	8.3%	70	10.0%
Total	113	100%	79	100%	43	100%	152	100%	314	100%	701	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	171	61.3%	90	75.4%	25	67.5%	173	72.0%	520	67.6%	979	67.7%
Family	42	15.0%	21	17.9%	4	10.6%	13	5.5%	158	20.5%	238	16.5%
Company	21	7.6%	5	4.6%	0	0.0%	27	11.1%	20	2.6%	73	5.0%
Friends	0	0.0%	0	0.0%	1	1.9%	0	0.0%	7	0.9%	8	0.6%
Combination	3	1.0%	0	0.0%	0	0.0%	4	1.6%	2	0.2%	9	0.6%
Not applicable	42	14.9%	3	2.1%	7	20.1%	24	9.9%	63	8.1%	139	9.6%
Total	279	100%	119	100%	37	100%	241	100%	770	100%	1446	100%

b) Work trips during the Day

The D and HE groups had the highest proportional use of company cars in each age range. The night drivers were under-represented in the use of company cars for the <21 (5.5% c.f. 12.7%) and 21-25 (2.6% c.f. 17.2%) age ranges. This was also true for the 26-50 group but to a smaller degree (7.1% c.f. 10.7%). The 21-25 year old night drivers were over-represented in the use of the family's car (28.6%) compared to their group size proportion of 17%.

TABLE 3.22b

**WHOSE CAR IS DRIVEN ON WORK TRIPS DURING
THE DAY BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Own	71 50.8%	18 56.5%	16 31.8%	73 51.8%	72 25.8%	250 38.8%
Family	17 12.0%	4 11.2%	5 9.8%	8 5.9%	33 11.7%	67 10.4%
Company	8 5.8%	0 0.0%	2 3.7%	18 12.8%	8 2.8%	36 5.8%
Friends	1 0.8%	0 1.2%	0 0.0%	1 0.5%	2 0.9%	4 0.6%
Combination	1 0.9%	0 0.0%	0 0.0%	1 0.8%	1 0.2%	3 0.6%
Not applicable	42 29.8%	10 31.0%	27 54.7%	40 28.5%	165 58.6%	284 44.1%
Total	140 100%	32 100%	50 100%	141 100%	281 100%	644 100%

Driver age: 21-25 years (n=757)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Own	59 52.2%	47 59.7%	16 38.7%	95 56.1%	141 44.9%	349 49.9%
Family	0 0.4%	4 8.5%	2 5.7%	2 1.6%	13 4.1%	21 3.0%
Company	27 23.6%	2 2.9%	0 0.0%	27 17.7%	20 6.6%	76 10.9%
Friends	2 1.7%	1 1.5%	0 0.0%	1 0.4%	5 1.5%	9 1.3%
Combination	1 1.1%	0 0.0%	0 0.0%	1 0.8%	2 0.6%	4 0.6%
Not applicable	23 21.0%	24 30.4%	24 56.7%	36 23.5%	133 42.3%	240 34.3%
Total	112 100%	78 100%	42 100%	153 100%	314 100%	609 100%

Driver age: 26-50 years (n=1510)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Own	133 47.7%	64 54.1%	11 30.9%	108 44.0%	310 40.3%	624 43.3%
Family	18 6.4%	8 6.9%	0 1.1%	7 2.8%	49 6.4%	82 5.7%
Company	57 20.5%	7 6.2%	5 13.1%	62 25.9%	36 4.7%	167 11.8%
Friends	3 0.9%	0 0.0%	0 0.0%	0 0.0%	2 0.3%	5 0.3%
Combination	3 1.1%	3 2.6%	0 0.0%	5 2.1%	1 0.2%	12 0.8%
Not applicable	65 23.4%	36 30.2%	20 54.5%	61 26.2%	370 48.2%	552 38.3%
Total	279 100%	118 100%	36 100%	241 100%	788 100%	1442 100%

c) Non-work trips at night-time

The trend for this type of driving was for night drivers to be proportionally over-represented in the use of their own, and family's, car in each age group. The magnitude of this over-representation was only very slight in the youngest age group - 15.7% for own car use, and 16.3% for family car use, compared to 13% of total age group size. The 21-25 year old night drivers comprised 22.3% of own car drivers and 27.4% of family car drivers, compared to comprising 17% of the age group total. The 26-50 year old night drivers made up 16.7% and 16.3% of own and family car drivers respectively compared to comprising 11% of the age group total. Obviously, by definition, the D and LE groups had the lowest proportions of applicability of this type of driving.

TABLE 3.22c

**WHOSE CAR IS DRIVEN ON NON-WORK TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	78	55.6%	25	76.7%	26	65.4%	112	79.2%	94	33.7%	337	62.3%
Family	28	20.2%	6	18.7%	16	31.2%	21	15.1%	64	23.0%	135	21.0%
Company	0	0.0%	0	0.0%	0	0.0%	1	0.5%	0	0.0%	1	0.2%
Friends	1	0.8%	1	2.8%	1	2.4%	4	2.7%	3	1.0%	10	1.6%
Combination	0	0.0%	0	0.0%	0	0.0%	2	1.6%	0	0.0%	2	0.3%
Not applicable	33	23.3%	1	2.1%	6	11.0%	1	0.9%	118	42.1%	159	24.7%
Total	140	100%	33	100%	51	100%	141	100%	278	100%	644	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	54	47.8%	63	80.9%	30	71.2%	118	77.1%	152	48.4%	417	59.6%
Family	6	5.0%	9	11.0%	8	18.6%	13	8.7%	26	8.3%	62	8.9%
Company	6	5.3%	0	0.0%	2	5.7%	5	3.1%	1	0.4%	14	2.0%
Friends	1	1.1%	1	1.8%	1	1.6%	3	2.0%	10	3.1%	16	2.3%
Combination	2	1.7%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	3	0.4%
Not applicable	44	35.1%	5	6.6%	1	2.8%	13	8.2%	125	39.9%	188	26.9%
Total	113	100%	78	100%	42	100%	153	100%	314	100%	700	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	96	34.5%	80	67.5%	26	69.6%	171	71.3%	263	34.2%	636	44.0%
Family	29	10.6%	21	17.3%	3	7.7%	13	5.2%	81	10.6%	147	10.2%
Company	15	5.4%	5	4.6%	1	3.3%	28	11.4%	17	2.2%	66	4.6%
Friends	1	0.4%	0	0.0%	1	1.9%	0	0.0%	4	0.6%	6	0.4%
Combination	1	0.4%	1	0.8%	0	0.0%	4	1.6%	2	0.2%	10	0.8%
Not applicable	137	48.8%	12	10.1%	6	17.6%	25	10.5%	402	52.2%	582	40.2%
Total	279	100%	119	100%	37	100%	241	100%	769	100%	1447	100%

d) Work trips at night-time.

Despite the somewhat large discrepancies between the groups for use of their own car, it seems that, once the applicability of this driving is taken into account (a very high not applicable rate for all D and LE groups - more than 86%), drivers in all groups tended to use their own car for work related driving at night. For all age groups, night drivers were over-represented in the use of their own car - 28.4% in the youngest group, 31.4% in the 21-25 group and 27.9% in the oldest age group.

TABLE 3.22d

**WHOSE CAR IS DRIVEN ON NON-WORK TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	13	9.3%	13	39.6%	12	23.4%	30	21.0%	20	7.2%	88	13.6%
Family	3	2.0%	1	3.7%	4	8.6%	4	2.6%	16	5.6%	28	4.3%
Company	0	0.0%	0	0.0%	1	1.4%	4	2.5%	1	0.4%	6	0.9%
Friends	0	0.0%	0	0.0%	0	0.0%	1	0.5%	1	0.4%	2	0.3%
Own & family	1	0.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%
Not applicabl	123	87.9%	18	56.7%	34	66.7%	104	73.4%	242	86.3%	521	80.7%
Total	140	100%	32	100%	51	100%	143	100%	280	100%	646	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	11	10.1%	20	26.1%	12	28.6%	30	19.9%	29	9.4%	102	14.7%
Family	0	0.0%	1	1.5%	1	2.8%	1	0.8%	4	1.3%	7	1.0%
Company	1	1.1%	1	1.5%	1	2.9%	13	8.5%	2	0.8%	18	2.6%
Friends	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	1	0.1%
Not applicabl	100	88.8%	55	70.7%	28	65.8%	107	70.5%	277	88.1%	567	81.6%
Total	112	100%	77	100%	42	100%	151	100%	313	100%	695	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Own	15	5.2%	31	25.9%	8	21.2%	41	16.3%	45	6.9%	140	9.7%
Family	1	0.5%	5	3.8%	2	4.4%	6	2.3%	10	1.2%	24	1.7%
Company	7	2.5%	4	3.0%	4	11.0%	27	11.4%	4	0.8%	46	3.2%
Other	0	0.0%	0	0.0%	0	0.0%	1	0.5%	0	0.0%	1	0.1%
Own & other	0	0.0%	0	0.0%	0	0.0%	1	0.3%	0	0.0%	1	0.1%
Not applicabl	256	91.7%	80	67.3%	23	63.6%	166	68.7%	708	92.4%	1234	85.3%
Total	279	100%	120	100%	37	100%	242	100%	768	100%	1446	100%

3.5.3 Do you ever just go for a drive?

Note: The following data in this section includes only those respondents for whom the type of driving was applicable.

a) Non-work trips during the day

TABLE 3.23a

FREQUENCY OF 'JUST GOING FOR A DRIVE' ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	29	23.3%	7	20.9%	7	15.4%	45	33.1%	33	12.3%	121	20.0%
Sometimes	61	48.4%	17	52.8%	20	46.6%	51	37.6%	128	47.9%	277	46.8%
Never	36	28.2%	8	24.3%	16	38.0%	40	29.4%	107	38.8%	207	34.2%
Total	126	100%	32	100%	43	100%	136	100%	268	100%	605	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	20	19.8%	12	16.8%	5	14.3%	44	32.4%	32	11.1%	113	17.9%
Sometimes	47	46.8%	34	46.3%	18	52.5%	56	41.3%	130	45.1%	285	45.1%
Never	34	33.6%	27	36.9%	11	33.2%	36	26.3%	126	43.7%	234	37.0%
Total	101	100%	73	100%	34	100%	136	100%	288	100%	632	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	32	13.3%	15	12.8%	5	16.8%	44	20.5%	56	8.0%	152	11.7%
Sometimes	101	42.6%	47	40.6%	13	45.5%	102	47.1%	326	46.2%	589	45.2%
Never	105	44.1%	54	46.6%	11	37.8%	70	32.4%	323	45.8%	563	43.2%
Total	238	100%	116	100%	29	100%	216	100%	705	100%	1304	100%

A higher overall proportion of <21 drivers were inclined to regularly just go for a drive on non-work trips during the day, followed by the 21-25 then 26-50 year old drivers. There were, however, no substantial over- or under-representations of the night drivers to regularly just go for a drive. Worthy of note is the HE group that had the highest proportion of respondents in each age group stating that they regularly just went for a drive.

b) Work trips during the day

No substantive differences between the exposure groups were apparent for this type of driving.

c) Non-work trips at night-time

TABLE 3.23b

FREQUENCY OF 'JUST GOING FOR A DRIVE' ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	20	18.2%	7	21.9%	8	18.8%	43	30.6%	11	6.6%	89	18.3%
Sometimes	51	47.5%	14	42.8%	22	49.5%	48	34.2%	64	39.6%	199	40.9%
Never	37	34.3%	11	36.3%	14	31.7%	49	35.2%	87	63.6%	198	40.7%
Total	108	100%	32	100%	44	100%	140	100%	162	100%	486	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	9	13.4%	11	14.5%	6	13.8%	34	24.1%	13	6.7%	73	14.3%
Sometimes	29	42.4%	28	37.8%	18	44.9%	57	41.1%	63	33.4%	195	38.1%
Never	30	44.2%	35	47.9%	17	41.6%	49	34.8%	112	69.3%	243	47.5%
Not applicable	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.6%	1	0.2%
Total	68	100%	74	100%	41	100%	140	100%	189	100%	512	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Regularly	3	2.3%	9	8.4%	3	10.1%	27	12.4%	11	2.9%	53	6.1%
Sometimes	56	39.1%	36	33.5%	11	36.0%	79	36.9%	114	31.0%	298	34.3%
Never	84	68.6%	62	68.0%	18	63.9%	109	60.7%	242	66.0%	513	69.4%
Not applicable	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Total	143	100%	107	100%	30	100%	215	100%	368	100%	863	100%

The HE group again had the greatest proportion of members stating that they regularly just go for a drive for all age groups. There was a slight over-representation of night drivers in the <21 age range that did that regularly (16.9%) compared to comprising 13% of the age group total. This over-representation was not evident in the other young driver group, but was found in the oldest age group - 22.6% of those respondents that regularly just went for as drive were night drivers despite them only making up 16% of the age group total.

d) Work trips at night-time

No substantive differences between exposure groups were found for this type of driving.

3.5.4 How familiar are you with the routes you take?

Note: For the following variables, the percentages of responses to 'always' and 'most of the time' are grouped for the purposes of discussion. Only the respondents for whom the type of driving was applicable were included in the tables.

a) Non-work trips during the day

TABLE 3.24a

FREQUENCY OF USE OF STREET DIRECTORY OR DIRECTIONS ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	6	4.6%	0	0.0%	0	0.0%	4	3.1%	11	4.1%	21	3.5%
Most of time	8	6.6%	1	2.1%	2	3.8%	6	4.5%	17	6.3%	34	5.6%
Occasionally	41	32.1%	18	49.4%	12	29.4%	49	36.3%	103	38.3%	221	36.6%
Never	72	66.6%	16	48.6%	28	66.9%	76	56.1%	137	51.3%	329	64.4%
Total	127	100%	33	100%	42	100%	135	100%	268	100%	605	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	0	0.0%	4	4.9%	1	3.1%	5	4.0%	16	6.6%	26	4.1%
Most of time	7	7.2%	7	9.1%	1	3.9%	11	8.0%	19	6.6%	45	7.1%
Occasionally	48	47.8%	36	49.6%	16	47.3%	49	36.0%	97	33.6%	246	38.9%
Never	45	45.0%	27	36.5%	16	46.7%	70	52.0%	157	54.8%	315	49.8%
Total	100	100%	74	100%	34	100%	135	100%	269	100%	632	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	12	4.8%	2	1.9%	1	4.1%	9	4.2%	31	4.4%	55	4.2%
Most of time	17	7.1%	10	9.0%	2	8.2%	18	8.5%	38	5.1%	83	6.4%
Occasionally	95	40.2%	60	51.8%	12	40.4%	91	41.9%	267	37.8%	525	40.3%
Never	114	47.9%	43	37.3%	14	47.3%	98	45.3%	372	52.7%	641	49.2%
Total	238	100%	115	100%	29	100%	216	100%	706	100%	1304	100%

On the whole, few drivers stated that they use directions always or most of the time. This was consistent across the three age groups. In the youngest age group, night drivers were under-represented in the combined 'always' and 'most of the time' categories - 5.5% of these drivers in the <21 age group were night drivers although they account for 12% of the age group total (75/605). This difference was not found in the 21-25 or 26-50 year old age groups.

b) Work trips during the day

TABLE 3.24b

FREQUENCY OF USE OF STREET DIRECTORY OR DIRECTIONS ON WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	4	3.7%	0	0.0%	0	0.0%	7	7.1%	4	3.3%	15	4.1%
Most of time	8	8.8%	0	0.0%	0	0.0%	10	8.7%	7	6.0%	25	6.9%
Occasionally	13	13.0%	5	21.0%	3	13.5%	19	19.1%	10	9.0%	50	13.8%
Never	74	74.8%	18	78.0%	20	86.5%	65	64.1%	95	81.7%	272	76.1%
Total	99	100%	23	100%	23	100%	101	100%	116	100%	362	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	4	4.5%	1	2.2%	4	19.2%	10	8.7%	8	4.6%	27	6.9%
Most of time	10	11.5%	2	3.4%	1	6.3%	9	7.9%	7	4.0%	29	6.3%
Occasionally	24	28.8%	9	15.9%	1	6.3%	16	14.1%	20	14.1%	76	16.5%
Never	51	57.4%	43	78.5%	13	68.1%	61	65.3%	140	77.3%	328	71.3%
Total	89	100%	55	100%	19	100%	116	100%	181	100%	460	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	17	7.9%	0	0.0%	0	0.0%	7	4.0%	23	5.9%	47	5.3%
Most of time	17	7.9%	10	11.8%	0	0.0%	20	11.2%	22	5.8%	69	7.7%
Occasionally	59	27.5%	19	22.8%	6	33.9%	63	35.0%	75	18.9%	222	24.9%
Never	121	56.7%	54	65.4%	11	66.1%	90	49.8%	278	69.7%	554	62.1%
Total	214	100%	83	100%	17	100%	180	100%	398	100%	692	100%

None of the members of the two <21 year old night groups stated that they use directions always or most of the time for work trips during the day. There were no results of note in the 21-25 age range, except that the Nn group had a higher proportion of drivers that 'always' used directions, compared to the other exposure groups.

However, in the oldest age range, once again no Nn drivers stated that they use directions always or most of the time. Small group size may contribute to these discrepant results.

c) Non-work trips at night-time

TABLE 3.24c

FREQUENCY OF USE OF STREET DIRECTORY OR DIRECTIONS ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	2	1.7%	0	0.0%	1	2.7%	3	2.2%	4	2.7%	10	2.1%
Most of time	8	6.6%	2	7.6%	2	3.6%	5	3.8%	14	8.7%	29	6.0%
Occasionally	35	32.7%	13	42.1%	15	33.3%	50	35.9%	48	29.6%	161	33.2%
Never	65	60.0%	16	50.3%	27	60.4%	81	58.1%	96	59.0%	285	58.8%
Total	108	100%	31	100%	45	100%	139	100%	162	100%	485	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	0	0.0%	2	3.3%	2	3.9%	5	3.4%	7	3.5%	16	3.1%
Most of time	2	3.6%	5	6.6%	1	3.3%	5	3.5%	10	5.4%	23	4.5%
Occasionally	29	41.8%	39	53.1%	18	42.6%	53	38.0%	60	31.5%	199	38.7%
Never	38	54.7%	27	37.1%	21	50.3%	77	55.1%	113	59.6%	276	53.7%
Total	69	100%	73	100%	42	100%	140	100%	190	100%	514	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	3	2.3%	2	2.1%	1	3.9%	9	4.0%	12	3.4%	27	3.1%
Most of time	5	3.8%	10	9.1%	2	8.0%	18	8.6%	18	4.9%	53	6.2%
Occasionally	51	35.8%	44	41.2%	12	40.9%	85	39.3%	128	35.0%	320	37.2%
Never	83	58.0%	51	47.6%	14	47.2%	104	48.2%	208	56.8%	460	53.5%
Total	142	100%	107	100%	29	100%	216	100%	366	100%	860	100%

The youngest night drivers differed from night drivers in the other two age groups by being slightly under-represented in the group who use directions always or most of the time (12.8% compared to accounting for 16% of the total).

Night drivers in the 21-25 age range accounted for 25.6% of drivers using directions always or most of the time, and 22% of the age group total. Comparable results for the oldest night drivers were 18.8% and 16% respectively.

d) Work trips at night-time

TABLE 3.24d

**FREQUENCY OF USE OF STREET DIRECTORY OR DIRECTIONS ON WORK TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	0	0.0%	0	0.0%	1	4.1%	2	6.0%	0	0.0%	3	2.6%
Most of time	0	0.0%	1	8.6%	1	4.0%	1	3.2%	0	0.0%	3	2.6%
Occasionally	2	9.4%	2	13.4%	4	25.8%	4	11.4%	5	14.7%	17	13.9%
Never	15	80.6%	11	78.0%	11	66.2%	30	80.4%	32	85.0%	99	81.1%
Total	17	100%	14	100%	17	100%	37	100%	37	100%	122	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	0	0.0%	0	0.0%	1	8.2%	5	10.8%	0	0.0%	6	4.5%
Most of time	1	9.5%	1	5.2%	2	16.6%	1	2.7%	2	4.3%	7	6.3%
Occasionally	2	18.8%	2	8.2%	0	0.0%	3	6.8%	7	17.7%	14	10.6%
Never	9	71.6%	20	86.6%	11	75.3%	36	79.9%	29	77.9%	105	79.5%
Total	12	100%	23	100%	14	100%	45	100%	38	100%	132	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	1	5.2%	0	0.0%	0	0.0%	4	5.0%	7	11.1%	12	6.7%
Most of time	0	0.0%	2	4.9%	1	9.0%	8	10.4%	0	0.0%	11	5.2%
Occasionally	11	46.3%	11	27.1%	5	38.0%	28	37.6%	9	14.6%	64	30.3%
Never	11	48.5%	27	68.1%	7	55.0%	35	47.0%	44	74.3%	124	58.8%
Total	23	100%	40	100%	13	100%	75	100%	60	100%	211	100%

The cell sizes for this table are generally small: the table is included for the purposes of information and completeness.

3.5.5 Are you under time pressure to reach your destination?

a) Non-work trips during the day

TABLE 3.25a

FREQUENCY OF EXPERIENCING TIME PRESSURE TO REACH DESTINATIONS ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	5	4.3%	1	3.0%	4	8.5%	7	5.5%	9	3.2%	26	4.3%
Sometimes	32	25.6%	12	36.3%	9	22.1%	45	35.7%	82	30.7%	163	30.4%
Never	89	70.2%	19	59.9%	29	69.4%	79	58.8%	177	66.1%	393	65.3%
Total	126	100%	32	100%	42	100%	134	100%	268	100%	602	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	4	4.3%	2	3.3%	3	10.1%	7	5.1%	12	4.0%	28	4.4%
Sometimes	35	34.0%	29	39.5%	8	23.2%	41	30.4%	79	27.4%	193	30.6%
Never	60	69.7%	42	67.2%	23	66.7%	87	64.6%	197	68.6%	409	64.9%
Total	100	100%	73	100%	34	100%	135	100%	268	100%	630	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	20	8.4%	7	6.3%	3	8.6%	14	6.4%	45	6.4%	59	6.8%
Sometimes	80	33.7%	35	30.1%	8	28.7%	78	35.8%	184	26.1%	365	29.5%
Never	138	68.0%	74	63.6%	18	62.7%	125	57.7%	476	67.6%	831	63.7%
Total	238	100%	116	100%	29	100%	217	100%	705	100%	1305	100%

The night groups in the youngest age range were over-represented in the group of drivers who stated that they always feel time pressure on non-work trips during the day (19.2% of this group and 12% of the age group total).

This result was not found in the 21-25 or 26-50 age groups.

b) Work trips during the day

TABLE 3.25b

FREQUENCY OF EXPERIENCING TIME PRESSURE TO REACH DESTINATIONS ON WORK RELATED TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	19	19.2%	4	18.2%	8	26.0%	28	27.6%	18	16.2%	75	20.7%
Sometimes	42	42.4%	9	42.8%	5	21.7%	46	46.3%	50	43.1%	152	42.0%
Never	38	38.4%	9	38.3%	12	53.3%	28	27.2%	48	41.7%	135	37.3%
Total	99	100%	22	100%	23	100%	102	100%	116	100%	362	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	27	29.9%	10	18.6%	4	22.7%	36	30.8%	47	26.1%	124	26.9%
Sometimes	34	38.6%	20	37.0%	2	9.9%	42	35.6%	53	29.4%	151	32.8%
Never	28	31.6%	24	44.4%	13	67.4%	40	34.0%	61	44.5%	166	40.3%
Total	89	100%	54	100%	19	100%	118	100%	161	100%	461	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	57	26.4%	24	28.8%	4	26.8%	56	30.9%	72	18.0%	213	23.9%
Sometimes	78	35.6%	30	34.2%	7	42.0%	62	34.2%	130	32.6%	305	34.2%
Never	81	38.0%	29	35.0%	5	31.3%	63	34.9%	197	49.5%	375	42.0%
Total	214	100%	83	100%	16	100%	181	100%	399	100%	893	100%

The only consistent pattern of results for this type of driving was for the HE drivers who maintained a relatively high proportion of members who always felt under pressure across the three age groups.

There was no substantial proportional over- or under-representation for night drivers in any age range, however the 21-25 year old night drivers were slightly under-represented in the 'always' feel time pressure group - 11.3% of this group and 16% of the age group total.

c) Non-work trips at night-time

TABLE 3.25c

FREQUENCY OF EXPERIENCING TIME PRESSURE TO REACH DESTINATIONS ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)												
	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
Always	2	2.2%	1	3.8%	2	5.4%	4	3.2%	4	2.2%	13	2.7%
Sometimes	21	19.2%	11	33.8%	12	27.4%	43	30.9%	43	26.8%	130	26.8%
Never	85	78.8%	20	62.6%	30	67.2%	92	66.0%	115	71.2%	342	70.6%
Total	108	100%	32	100%	44	100%	139	100%	162	100%	485	100%

Driver age: 21-25 years (n=757)												
	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
Always	2	2.7%	2	2.6%	5	13.0%	7	5.4%	8	3.1%	22	4.3%
Sometimes	17	24.8%	25	33.7%	11	25.6%	37	26.1%	49	26.7%	139	27.1%
Never	50	72.7%	47	63.7%	25	61.4%	95	68.5%	134	71.2%	352	68.6%
Total	69	100%	74	100%	41	100%	140	100%	189	100%	513	100%

Driver age: 26-60 years (n=1510)												
	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
Always	7	5.0%	4	3.4%	2	6.2%	12	5.6%	17	4.6%	42	4.9%
Sometimes	36	25.4%	33	31.1%	12	38.3%	68	31.7%	74	20.1%	223	26.8%
Never	99	69.6%	70	65.6%	17	55.6%	135	62.7%	276	76.1%	597	69.2%
Not applicable	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Total	142	100%	107	100%	31	100%	215	100%	368	100%	863	100%

Night drivers in both young driver groups were over-represented in the groups of drivers that always felt under time pressure to reach destinations on non-work trips during the day.

The youngest night drivers accounted for 23% of these 'pressured' drivers, and only 16% of the age group total. 21-25 year old night drivers were 31.8% of the pressured drivers, and are only 22% of the age group total.

This pattern of over-representation was not apparent in the oldest age group.

d) Work trips at night-time

TABLE 3.25d

FREQUENCY OF EXPERIENCING TIME PRESSURE TO REACH DESTINATIONS ON WORK RELATED TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	3	17.9%	3	24.7%	6	37.5%	12	31.0%	5	12.6%	29	23.8%
Sometimes	5	29.7%	5	36.4%	3	18.4%	15	39.8%	18	47.2%	46	37.7%
Never	9	52.4%	5	38.9%	7	44.0%	11	29.2%	15	40.2%	47	38.5%
Total	17	100%	13	100%	16	100%	38	100%	38	100%	122	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	2	19.0%	2	10.6%	2	16.4%	7	18.7%	10	27.8%	23	17.7%
Sometimes	2	19.0%	9	40.3%	5	34.0%	19	42.6%	8	20.6%	43	33.1%
Never	8	62.0%	11	49.2%	7	49.6%	19	41.7%	19	51.7%	64	49.2%
Total	12	100%	22	100%	14	100%	45	100%	37	100%	130	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Always	6	26.1%	9	22.6%	5	36.2%	17	23.1%	13	22.6%	50	23.9%
Sometimes	5	23.3%	9	24.0%	2	15.9%	25	33.7%	14	23.7%	55	26.3%
Never	12	50.6%	21	53.4%	6	46.9%	33	43.2%	32	53.8%	104	49.8%
Total	23	100%	39	100%	13	100%	75	100%	59	100%	208	100%

This variable displayed a rather inconsistent set of results for the proportional involvement of night drivers. The youngest night drivers were over-represented in the group that always experienced time pressure to reach destinations (31% of this group compared to 24% of the age group total). Conversely, 21-25 year old night drivers were under-represented in the 'always' group - 17.4% compared to 28% of the age group total.

The oldest night drivers were very slightly over-represented for 'always' responses, however only by a few percentage points (28% compared with 25% of the age group total).

3.5.6 How many passengers do you usually carry?

a) Non-work trips during the day

TABLE 3.26a

NUMBER OF PASSENGERS CARRIED ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)												
No. of passengers	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
None	24	18.7%	9	26.8%	6	13.2%	16	11.9%	44	18.6%	99	16.4%
One	55	43.3%	15	45.6%	17	41.3%	58	42.7%	118	43.9%	263	43.5%
Two or more	48	38.1%	9	27.6%	19	45.5%	61	45.4%	106	39.5%	243	40.2%
Total	127	100%	33	100%	42	100%	135	100%	268	100%	605	100%

Driver age: 21-25 years (n=757)												
No. of passengers	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
None	20	20.2%	19	25.7%	8	22.7%	19	14.1%	73	25.5%	139	22.0%
One	46	45.7%	36	48.4%	14	40.8%	61	45.3%	115	39.9%	272	43.0%
Two or more	34	34.1%	19	26.0%	13	36.5%	55	40.6%	100	34.6%	221	35.0%
Total	100	100%	74	100%	35	100%	135	100%	288	100%	632	100%

Driver age: 26-50 years (n=1510)												
No. of passengers	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
None	36	15.2%	33	20.0%	9	29.6%	44	20.4%	119	16.8%	241	18.5%
One	62	26.2%	31	26.5%	9	30.9%	52	24.2%	197	27.9%	351	26.9%
Two or more	139	58.6%	53	45.5%	12	39.5%	120	55.4%	350	55.3%	714	54.7%
Total	237	100%	117	100%	30	100%	216	100%	706	100%	1308	100%

All exposure groups in the 26-50 year old age range had the highest rate of carrying two or more passengers compared with their younger counterparts. A trend appeared for proportional involvement for the carriage of passengers for this type of driving. Night drivers tended to be under-represented in the group who carried two or more passengers, and over-represented in the group carrying no passengers.

It should be noted that, while consistent across age groups, most of these proportional differences were very small.

b) Work trips during the day

TABLE 3.26b

**NUMBER OF PASSENGERS CARRIED ON WORK RELATED TRIPS DURING
THE DAY BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	69 70.0%	19 84.5%	20 88.4%	76 76.7%	93 80.1%	279 77.7%
One	23 23.4%	3 13.7%	1 5.3%	12 11.9%	18 15.7%	57 15.9%
Two or more	6 6.5%	0 1.8%	1 5.3%	11 11.4%	5 4.1%	23 6.4%
Total	98 100%	22 100%	22 100%	101 100%	116 100%	359 100%

Driver age: 21-25 years (n=757)

No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	59 66.2%	40 73.1%	14 74.6%	80 68.9%	147 81.2%	340 73.9%
One	24 27.2%	13 23.5%	4 19.1%	26 22.3%	22 12.4%	89 19.3%
Two or more	6 6.6%	2 3.5%	1 6.3%	10 8.8%	12 6.4%	31 6.7%
Total	89 100%	55 100%	19 100%	116 100%	181 100%	460 100%

Driver age: 26-50 years (n=1510)

No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	152 71.1%	65 77.8%	14 86.3%	130 72.3%	291 73.6%	652 73.0%
One	31 14.3%	11 13.2%	1 4.1%	31 17.2%	64 16.0%	138 15.5%
Two or more	31 14.6%	7 8.0%	2 9.6%	19 10.5%	44 11.0%	103 11.5%
Total	214 100%	83 100%	17 100%	180 100%	399 100%	893 100%

Similar to non-work trips during the day, a trend for the carriage of passengers for this type of driving was for the night drivers to be proportionally under-represented in the group that carried two or more passengers. The differences were slightly larger in the younger age groups - <21 year old night drivers accounted for only 4.3% of drivers carrying two or more passengers and 12% of the age group total; 21-25 year old night drivers respective proportions were 9.7% and 16%; and 26-50 year old night drivers were 8.7% and 11% of drivers carrying two or more passengers and the age group total respectively.

Unlike non-work trips during the day, under-representation in solo driving was not apparent for this type of driving.

c) Non-work trips at night-time

TABLE 3.26c

**NUMBER OF PASSENGERS CARRIED ON NON-WORK TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)												
No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total						
None	18	16.8%	5	14.7%	2	4.2%	11	8.1%	34	21.1%	70	14.4%
One	40	37.1%	12	38.4%	21	46.5%	48	34.5%	67	41.4%	188	38.8%
Two or more	50	46.1%	15	46.9%	22	48.3%	81	57.5%	61	37.4%	229	47.0%
Total	108	100%	32	100%	45	100%	140	100%	162	100%	467	100%

Driver age: 21-25 years (n=757)												
No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total						
None	9	12.6%	17	23.2%	7	16.5%	20	14.2%	47	24.8%	100	19.5%
One	35	50.3%	36	48.1%	20	47.8%	61	43.4%	81	42.9%	232	45.1%
Two or more	26	37.1%	21	28.7%	15	35.8%	59	42.4%	61	32.2%	182	35.4%
Total	70	100%	73	100%	42	100%	140	100%	189	100%	514	100%

Driver age: 26-50 years (n=1510)												
No. of passengers	D	N (d>n)	N (n>d)	HE	LE (d)	Total						
None	25	17.4%	26	24.0%	7	24.2%	47	22.0%	83	22.7%	188	21.8%
One	41	28.8%	37	34.9%	13	41.8%	53	24.8%	115	31.4%	259	30.1%
Two or more	77	54.0%	44	41.1%	10	34.0%	115	53.2%	168	45.9%	414	48.1%
Total	143	100%	107	100%	30	100%	215	100%	366	100%	861	100%

The youngest and oldest age groups had the highest overall proportions of carrying two or more passengers. Within groups, the HE drivers tended to have the highest proportions of members carrying two or more passengers for all age ranges.

There were no significant cases of over- or under-representation for night drivers for any amount of passengers in any age range.

d) Work trips at night-time

TABLE 3.26d

**NUMBER OF PASSENGERS CARRIED ON WORK TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	11 84.9%	10 73.2%	12 74.3%	28 74.0%	28 73.7%	89 73.0%
One	4 21.1%	3 18.2%	2 14.4%	4 11.4%	5 12.8%	18 14.8%
Two	2 14.0%	1 8.6%	2 11.3%	5 14.5%	5 13.6%	15 12.3%
Total	17 100%	14 100%	16 100%	37 100%	38 100%	122 100%

Driver age: 21-26 years (n=757)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	12 90.8%	19 81.3%	9 58.6%	29 65.5%	30 81.0%	99 74.4%
One	1 8.4%	3 13.4%	5 33.2%	12 26.5%	4 10.8%	25 18.8%
Two	0 0.0%	1 6.3%	1 8.2%	4 8.0%	3 8.3%	9 6.8%
Total	13 100%	23 100%	15 100%	45 100%	37 100%	133 100%

Driver age: 26-50 years (n=1510)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
None	18 78.2%	30 76.5%	8 60.0%	54 71.1%	46 78.1%	156 74.3%
One	5 23.8%	5 14.0%	3 19.1%	9 12.5%	11 18.6%	33 15.7%
Two	0 0.0%	4 9.6%	3 20.8%	12 16.5%	2 3.2%	21 10.0%
Total	23 100%	39 100%	14 100%	75 100%	59 100%	210 100%

For work trips at night-time, the night drivers in the two young age ranges were under-represented in the groups that carried two or more passengers - <21 year old night drivers comprised 20% of this group and 25% of the age group total; 21-25 year old night drivers made up 22% of those carrying two or more passengers and 29% of the age group total.

Conversely, night drivers in the oldest age group were over-represented in the two or more passengers group - 33.3% of this group compared to 25% of the age group total.

3.5.7 Are your passengers male, female, or both?

Note: some group sizes in this section are very low due to the following conditions:

- respondents must have done the type of driving applicable to be included
- respondents must have been carrying passengers to be included
- exposure groups are split by the gender of the driver/respondent

a) Non-work trips during the day

Male Drivers

TABLE 3.27a

GENDER OF PASSENGERS TRAVELLING WITH A MALE DRIVER ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	13	24.5%	2	21.4%	7	33.1%	22	28.0%	20	23.1%	64	25.7%
Female	16	30.4%	3	25.2%	4	19.8%	17	22.2%	22	25.1%	62	24.9%
Both	24	45.1%	6	52.6%	10	47.1%	39	49.8%	44	51.8%	123	49.4%
Total	53	100%	11	100%	21	100%	78	100%	86	100%	249	100%

Driver age: 21-25 years (n=757)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	19	48.7%	10	39.4%	8	54.0%	23	28.1%	27	33.3%	87	35.7%
Female	7	17.0%	5	21.6%	3	21.1%	16	19.6%	16	19.2%	47	19.3%
Both	13	34.3%	10	39.0%	4	24.8%	44	52.4%	39	47.5%	110	45.1%
Total	39	100%	25	100%	15	100%	83	100%	82	100%	244	100%

Driver age: 26-50 years (n=1510)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	38	58.5%	25	55.3%	4	29.0%	38	34.6%	83	37.2%	188	38.4%
Female	3	3.8%	4	8.3%	2	18.8%	9	8.3%	16	7.2%	34	8.9%
Both	57	58.0%	16	36.4%	7	51.6%	63	57.2%	125	55.8%	268	54.7%
Total	98	100%	45	100%	13	100%	110	100%	224	100%	490	100%

Overall, a greater proportion of 21-25 and 26-50 year old drivers carried only male passengers, compared to the <21 year old drivers. An apparent trend was for night drivers to be slightly over-represented in the carriage of male passengers in each of the age ranges. The oldest night drivers were over-represented in the carriage of female passengers (17.6% of this group compared to 12% of the age group total). The <21 year old group had the highest proportion of drivers who carried female passengers only.

Female Drivers

TABLE 3.27b

GENDER OF PASSENGERS TRAVELLING WITH A FEMALE DRIVER ON NON-WORK TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Male	13 27.1%	4 35.4%	7 46.7%	11 26.5%	42 30.8%	77 30.3%
Female	12 24.2%	0 3.3%	4 22.7%	6 14.1%	32 23.3%	54 21.3%
Both	24 48.7%	7 61.3%	5 30.6%	24 59.3%	63 45.9%	123 48.4%
Total	49 100%	11 100%	16 100%	41 100%	137 100%	254 100%

Driver age: 21-25 years (n=757)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Male	11 25.9%	9 31.8%	4 30.0%	13 40.8%	26 19.7%	63 25.6%
Female	13 31.8%	8 28.2%	5 45.4%	7 23.2%	50 37.7%	83 33.6%
Both	17 41.4%	12 40.0%	3 24.6%	12 36.0%	57 42.7%	101 40.8%
Total	41 100%	29 100%	12 100%	32 100%	133 100%	247 100%

Driver age: 26-50 years (n=1510)

	D	N (d>n)	N (n>d)	HE	LE (d)	Total
Male	32 31.4%	3 8.6%	1 16.7%	15 23.2%	59 24.6%	140 24.3%
Female	22 21.3%	12 29.8%	4 45.1%	17 27.6%	85 23.4%	140 24.3%
Both	49 47.2%	24 61.6%	3 38.2%	31 49.2%	159 62.0%	296 61.4%
Total	103 100%	39 100%	8 100%	63 100%	363 100%	576 100%

Similar to male drivers, female drivers less than 21 years of age were most likely to carry male passengers only. Again there was a slight trend for night drivers to be over-represented in the carriage of male passengers, however this was only for the two young driver groups - 14.3% of <21 year old drivers carrying males were night drivers, compared to 11% of the total sample; in the 21-25 year old age range, the respective proportions were 20.6% and 17% of the age group total.

All exposure groups <21 years old were more likely to carry both sexes than males or females only. The oldest night drivers were under-represented in the group who carried female passengers - 2.9% of this group were night drivers who accounted for 8% of the age group total.

b) Work trips during the day

Comparisons for this type of driving are not reliable due to many groups having almost no members. Even the generally larger groups of D and HE had very low memberships for passenger carriage during daytime work-related driving.

c) Non-work trips at night-time

Male Drivers**TABLE 3.27c****GENDER OF PASSENGERS TRAVELLING WITH A MALE DRIVER ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	11	24.8%	4	24.3%	5	28.6%	20	24.2%	11	21.3%	52	24.1%
Female	6	13.0%	3	19.8%	5	21.6%	14	16.9%	15	28.7%	43	19.9%
Both	29	62.3%	8	65.9%	11	61.8%	48	58.9%	25	60.0%	121	66.0%
Total	46	100%	15	100%	22	100%	82	100%	51	100%	216	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	14	42.8%	13	61.8%	11	68.9%	30	35.0%	20	37.7%	88	40.9%
Female	7	21.9%	4	16.8%	2	12.6%	10	11.5%	6	11.1%	29	13.6%
Both	12	36.3%	8	31.3%	5	28.5%	46	53.5%	27	51.2%	98	45.6%
Total	33	100%	25	100%	18	100%	86	100%	53	100%	215	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	28	43.5%	27	68.0%	5	42.6%	42	40.2%	53	46.6%	155	45.3%
Female	2	3.6%	4	8.1%	2	21.0%	4	3.9%	4	3.4%	16	4.7%
Both	34	62.9%	18	33.8%	4	36.4%	58	66.9%	59	61.1%	171	60.0%
Total	64	100%	47	100%	11	100%	104	100%	116	100%	342	100%

The youngest age group had the lowest overall proportion of male drivers who carried male passengers. The 21-25 year old night drivers were over-represented in the group who carried males - 27.3% were night drivers who made up 20% of the age group sample. The direction of proportional involvement was the same for the <21 year old night drivers, but the difference was very slight - 19.2% compared to 17% of the age group total.

The 26-50 year old age group is characterised by a tendency not to carry only female passengers, however the night drivers were over-represented for these passengers - 37.5% of this group were night drivers who comprised 17% of the age group sample.

Female Drivers

TABLE 3.27d

GENDER OF PASSENGERS TRAVELLING WITH A FEMALE DRIVER ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	11	25.3%	4	35.4%	7	34.6%	8	17.6%	20	25.5%	50	25.1%
Female	14	32.1%	2	14.1%	5	22.6%	16	34.9%	16	21.4%	53	26.6%
Both	18	42.6%	6	50.4%	9	42.8%	22	47.5%	41	53.1%	96	48.2%
Total	43	100%	12	100%	21	100%	46	100%	77	100%	199	100%

Driver age: 21-25 years (n=757)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	5	18.0%	6	18.1%	4	23.9%	5	16.5%	19	21.3%	39	19.8%
Female	9	31.6%	12	37.4%	7	43.4%	10	31.4%	37	41.3%	75	38.1%
Both	14	50.4%	14	44.5%	5	32.7%	17	52.1%	33	37.3%	83	42.1%
Total	28	100%	32	100%	16	100%	32	100%	89	100%	197	100%

Driver age: 26-50 years (n=1510)												
	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Male	10	17.8%	3	7.2%	2	16.1%	12	19.1%	34	20.6%	61	18.4%
Female	12	21.2%	12	35.2%	5	41.4%	21	35.1%	45	28.0%	96	29.0%
Both	33	60.9%	20	57.6%	5	42.6%	31	47.8%	85	51.4%	174	52.6%
Total	55	100%	35	100%	12	100%	64	100%	165	100%	331	100%

Unlike male drivers, the <21 year old female age group had the highest proportion of drivers that carried male passengers only. The night drivers within this age group were over-represented in the carriage of male passengers group - 22% of this group compared to 17% of the age sample. This was not the case in the 21-25 year old age group.

Night drivers in the 26-50 year old age group were under-represented in the sample that carried male passengers only - 8.2% of this group compared with 14% of the age group total.

d) Work related trips at night-time

Cell sizes were very small (the largest group numbered 13), therefore comparisons were not made for this type of driving.

3.5.8 How are your passengers related to you?

The following tables contain data relevant to all members of the exposure groups, with those not carrying passengers listed under 'not applicable'. Responses could include any combination of the four types of passengers (partner, family, friends and work colleagues). The following tables are collapsed, most of the combinations of responses have been grouped under the heading 'combinations', or 'other combinations'. A full table with all combinations listed can be found in Appendix D.

a) Non-work trips during the day

TABLE 3.28a

RELATIONSHIP OF PASSENGERS TO THE DRIVER ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	8	5.4%	0	0.0%	1	2.6%	9	6.1%	13	4.5%	31	4.8%
Family	19	13.8%	4	13.3%	4	7.0%	11	7.8%	69	24.6%	107	16.5%
Friends	59	42.0%	19	59.0%	26	55.1%	66	60.8%	115	40.9%	307	47.4%
Work colleagues	1	0.5%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	2	0.3%
Family, friends	13	9.0%	0	0.0%	2	4.8%	12	8.6%	16	5.6%	43	6.6%
Other Combinations	3	2.5%	0	0.0%	2	3.7%	1	0.8%	11	3.7%	17	2.8%
Not applicable	36	26.8%	9	27.7%	14	26.8%	23	15.9%	57	20.3%	141	21.8%
Total	141	100%	32	100%	51	100%	142	100%	262	100%	648	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	21	18.4%	9	11.2%	3	7.3%	18	11.8%	34	10.7%	85	12.2%
Family	22	19.8%	13	17.2%	8	19.6%	20	13.0%	74	23.5%	137	19.8%
Friends	26	23.2%	29	36.8%	14	33.2%	57	37.3%	91	29.0%	217	31.0%
Work colleagues	1	1.1%	0	0.0%	0	0.0%	2	1.6%	1	0.2%	4	0.6%
Family, friends	6	5.3%	2	3.1%	0	0.0%	11	7.1%	7	2.4%	26	3.7%
Other Combinations	3	2.8%	1	1.5%	1	2.9%	7	5.2%	8	2.5%	20	2.8%
Not applicable	33	29.5%	24	30.2%	16	37.1%	37	24.0%	100	31.7%	210	30.0%
Total	112	100%	78	100%	42	100%	152	100%	315	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	22	8.0%	15	12.9%	2	5.1%	28	11.6%	77	10.1%	144	10.0%
Family	150	53.8%	50	41.8%	8	22.9%	92	38.3%	395	51.4%	695	48.2%
Friends	5	2.0%	11	9.1%	7	17.7%	22	9.2%	35	4.6%	80	5.5%
Work colleagues	1	0.2%	0	0.0%	0	0.0%	2	1.0%	0	0.0%	3	0.2%
Partner, family	16	5.6%	4	3.1%	2	4.4%	12	5.0%	48	6.2%	82	5.7%
Other Combinations	7	2.5%	4	3.6%	2	5.0%	15	6.5%	30	4.1%	58	3.8%
Not applicable	78	27.8%	35	29.0%	16	43.8%	68	28.3%	183	23.7%	360	26.4%
Total	278	100%	119	100%	37	99%	239	100%	768	100%	1442	100%

The most common type of passenger for all exposure groups in the <21 year old age range was friends. Night drivers were under-represented in the group that carried family members - 7.5% of this group compared to 13% of the age group total. The trend in the two young age groups was for night drivers to be (only very slightly) over-represented in the carriage of friends. This over-representation becomes more substantial in the oldest age group - 22.5% of drivers carrying friends were night drivers who made up only 11% of the age group total. In the 26-50 year old age range, all groups were more likely to carry family than any other type of passenger.

b) Work trips during the day

TABLE 3.28b

RELATIONSHIP OF PASSENGERS TO THE DRIVER ON WORK RELATED TRIPS DURING THE DAY BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	2	1.7%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	3	0.5%
Family	7	5.1%	2	5.7%	0	0.0%	2	1.7%	8	2.8%	19	3.0%
Friends	6	4.3%	0	1.2%	1	2.4%	8	5.8%	6	2.1%	21	3.3%
Work colleagues	14	9.6%	1	3.7%	1	2.4%	9	6.8%	9	3.3%	34	5.3%
Combinations	0	0.0%	0	0.0%	0	0.0%	2	1.6%	0	0.0%	2	0.4%
Not applicable	111	79.0%	29	89.3%	48	95.2%	118	83.3%	257	91.7%	563	87.6%
Total	140	100%	32	100%	50	100%	140	100%	280	100%	643	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	1	1.1%	1	1.5%	0	0.0%	4	2.5%	3	1.0%	9	1.3%
Family	6	5.2%	4	5.4%	0	0.0%	3	2.0%	11	3.4%	24	3.4%
Friends	5	4.9%	3	4.0%	2	5.7%	6	3.9%	5	1.7%	21	3.0%
Work colleagues	15	13.4%	5	7.0%	2	5.6%	20	13.0%	11	3.5%	53	7.6%
Combinations	2	2.1%	0	0.0%	0	0.0%	3	2.4%	3	1.2%	8	1.1%
Not applicable	83	73.3%	65	82.1%	38	88.0%	117	76.2%	280	89.1%	583	83.2%
Total	112	100%	78	100%	42	100%	153	100%	313	100%	701	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	3	0.9%	1	1.0%	0	0.0%	2	1.0%	19	2.4%	25	1.7%
Family	24	8.8%	2	1.3%	1	3.3%	5	2.0%	32	4.1%	64	4.4%
Friends	1	0.4%	2	1.6%	0	0.0%	2	1.0%	9	1.2%	14	1.0%
Work colleagues	23	8.4%	10	8.5%	1	1.9%	27	11.4%	35	4.5%	96	6.6%
Combinations	10	3.5%	2	2.0%	1	1.1%	13	5.3%	12	1.6%	37	2.6%
Not applicable	217	77.9%	102	85.5%	34	80.8%	191	79.3%	664	86.1%	1208	83.7%
Total	278	100%	119	100%	37	100%	240	100%	771	100%	1464	100%

A high not applicable rate for this type of driving was evident for all groups. Overall, the most common type of passenger for this driving was work colleagues.

c) Non-work trips at night-time

TABLE 3.28c

RELATIONSHIP OF PASSENGERS TO THE DRIVER ON NON-WORK TRIPS AT NIGHT-TIME BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	8	6.0%	1	2.0%	3	5.0%	11	7.7%	8	2.9%	31	4.7%
Family	11	8.1%	4	13.3%	4	7.0%	11	7.9%	22	7.7%	52	7.9%
Friends	61	43.2%	21	64.5%	34	68.3%	95	67.4%	85	30.4%	296	45.2%
Family, friends	5	3.9%	1	3.7%	2	3.7%	10	6.9%	9	3.2%	27	4.1%
Other Combinations	3	4.7%	0	0.0%	1	1.3%	2	1.3%	4	1.3%	10	1.7%
Not applicable	51	36.2%	5	16.5%	8	14.7%	13	8.9%	153	54.3%	230	35.1%
Total	130	102%	32	100%	52	100%	142	100%	281	100%	655	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	21	18.3%	12	15.8%	5	12.9%	26	18.7%	30	9.5%	94	13.4%
Family	13	11.8%	10	12.8%	9	21.2%	15	9.8%	31	9.8%	78	11.1%
Friends	22	19.4%	31	40.0%	19	44.1%	63	41.3%	71	22.5%	206	28.4%
Family, friends	4	3.2%	2	3.1%	0	0.0%	8	5.5%	7	2.2%	21	3.0%
Other combinations	1	0.6%	0	0.0%	1	2.9%	9	5.8%	4	1.4%	15	2.1%
Not applicable	53	46.8%	22	28.3%	8	18.8%	32	21.2%	172	54.8%	287	40.9%
Total	114	100%	77	100%	42	100%	153	100%	315	100%	701	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	24	8.5%	17	13.9%	5	12.7%	29	12.2%	58	7.6%	133	9.2%
Family	72	25.9%	42	34.9%	8	22.9%	87	36.0%	156	20.1%	364	25.2%
Friends	5	1.7%	12	9.7%	8	21.7%	28	10.6%	21	2.7%	72	5.0%
Partner, family	14	4.8%	6	5.1%	0	0.0%	12	4.8%	33	4.3%	65	4.5%
Other Combinations	3	1.3%	5	4.6%	2	5.0%	14	6.0%	14	1.9%	38	2.8%
Not applicable	162	57.7%	38	31.7%	14	37.6%	73	30.2%	487	63.3%	774	53.5%
Total	280	100%	120	100%	37	100%	241	100%	768	100%	1446	100%

As with non-work trips during the day, the most common type of passenger for all groups in the <21 age range was friends, again to a greater extent for the HE and night groups than the D and LE groups. In fact, the night group are over-represented in the carriage of friends in all age groups - 18.9% of this group in the youngest age range compared to 13% of the age total; 24.3% compared to 17% of the 21-25 age group total; and 27.8% compared to making up only 11% of the 26-50 age group total. The 21-25 night drivers were also over-represented in the group carrying family members.

In the oldest age group, friends are less common passengers than the other age groups. Family is again the most common passenger for this age group. Unlike the younger night drivers, 26-50 year old night drivers are over-represented in the group that carried partners - 16.5% of this group. Non-work related driving at night-time becomes less applicable with age, i.e. as respondents get older, they are less likely to do non-work related driving at night-time.

d) Work trips at night-time

TABLE 3.28d

**RELATIONSHIP OF PASSENGERS TO THE DRIVER ON WORK RELATED TRIPS
AT NIGHT-TIME BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	1	0.9%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%
Family	2	1.7%	0	0.0%	0	0.0%	1	0.9%	1	0.4%	4	0.6%
Friends	1	0.8%	2	5.8%	2	3.8%	2	1.3%	2	0.8%	9	1.4%
Work colleagues	1	0.9%	2	5.8%	2	4.8%	5	3.9%	5	1.9%	15	2.3%
Combinations	0	0.0%	0	0.0%	0	0.0%	1	0.8%	1	0.4%	2	0.4%
Not applicable	134	95.8%	28	88.4%	46	91.4%	132	93.1%	270	96.4%	610	95.0%
Total	139	100%	32	100%	50	100%	141	100%	279	100%	642	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	0	0.0%	0	0.0%	0	0.0%	1	0.6%	0	0.0%	1	0.1%
Family	0	0.0%	0	0.0%	1	2.9%	0	0.3%	1	0.4%	2	0.3%
Friends	1	1.1%	1	1.5%	1	2.8%	5	3.2%	1	0.4%	9	1.3%
Work colleagues	0	0.0%	3	3.9%	4	8.5%	6	3.6%	2	0.5%	15	2.1%
Combinations	0	0.0%	0	0.0%	0	0.0%	3	2.4%	3	1.0%	6	0.8%
Not applicable	112	99.0%	74	94.5%	37	85.9%	136	89.9%	307	97.7%	666	95.3%
Total	113	100%	78	100%	43	100%	151	100%	314	100%	699	100%

Driver age: 26-50 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Partner	0	0.0%	1	1.0%	1	3.3%	1	0.5%	2	0.3%	5	0.3%
Family	1	0.4%	1	1.0%	1	3.3%	2	0.8%	4	0.5%	9	0.6%
Friends	1	0.2%	1	0.6%	0	0.0%	0	0.2%	0	0.1%	2	0.1%
Work colleagues	4	1.3%	5	4.1%	3	7.0%	12	4.9%	5	0.7%	29	2.0%
Combinations	0	0.0%	1	1.0%	0	1.1%	6	2.7%	1	0.2%	8	0.6%
Not applicable	274	98.0%	110	92.3%	31	85.4%	219	91.0%	755	98.3%	1389	96.3%
Total	280	100%	119	100%	36	100%	240	100%	767	100%	1442	100%

As with work related trips during the day, there was a high proportion of drivers for whom work-related driving at night-time was not applicable. Similarly again, for those who did do this type of driving (from any exposure group), the most common type of passenger was work colleagues.

3.5.9 Volume of Radio/Cassette

TABLE 3.29

**VOLUME OF RADIO/CASSETTE PLAYER WHILE DRIVING
BY AGE AND EXPOSURE GROUP**

Driver age: <21 years (n=741)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Soft	11	7.6%	0	0.0%	4	7.2%	6	4.8%	28	8.9%	49	7.6%
Moderate	77	54.8%	21	63.6%	20	40.1%	79	55.6%	165	68.1%	362	66.1%
Loud	45	32.4%	9	26.9%	20	40.6%	50	36.2%	67	24.1%	191	29.8%
Don't turn on	8	5.4%	3	9.5%	6	12.0%	7	4.7%	19	6.9%	43	6.7%
Total	141	100%	33	100%	50	100%	142	100%	279	100%	645	100%

Driver age: 21-25 years (n=757)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Soft	11	10.1%	10	12.2%	3	6.6%	18	11.7%	43	13.8%	85	12.1%
Moderate	74	65.5%	48	61.0%	30	70.4%	87	67.3%	187	69.6%	426	60.8%
Loud	21	18.4%	19	23.6%	10	23.0%	47	31.0%	66	21.0%	163	23.3%
Don't turn on	6	4.9%	2	3.1%	0	0.0%	0	0.0%	18	5.7%	26	3.7%
Not known	1	1.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Total	113	100%	79	100%	43	100%	152	100%	314	100%	701	100%

Driver age: 26-60 years (n=1510)

	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
Soft	56	19.9%	25	21.3%	9	24.0%	48	19.8%	198	25.5%	334	23.1%
Moderate	184	65.9%	79	66.1%	22	59.7%	144	59.7%	436	66.7%	865	69.8%
Loud	23	8.1%	9	7.2%	4	10.1%	40	16.6%	70	9.1%	146	10.1%
Don't turn on	17	6.1%	6	4.8%	2	6.2%	9	3.9%	67	8.7%	101	7.0%
Total	280	100%	119	100%	37	100%	241	100%	769	100%	1446	100%

In the <21 year old age group, all exposure groups had a higher proportion of drivers that played their stereo loud when compared to the older groups. The night drivers in the youngest age group were under-represented in the group who played their stereo softly - 8.1% of this group and 13% of the age group total. Perhaps surprisingly, the youngest night drivers were over-represented in the sample of drivers that didn't turn their stereo on - 20.9% of this group. This was not consistent with the 21-25 night drivers who were under-represented in the similar group - 7.6% of this group and 17% of the age group sample.

3.5.10 Parking Infringement Tickets

The following table lists the number of parking tickets received by members of each exposure group in the 12 months prior to questioning.

TABLE 3.30

**NUMBER OF PARKING INFRINGEMENTS RECEIVED OVER
A 12 MONTH PERIOD BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)

No. of parking tickets issued	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
0	104	74.3%	24	74.7%	39	78.6%	106	78.2%	233	83.1%	506	77.5%
1	21	14.6%	7	21.9%	7	14.6%	27	19.0%	32	11.3%	94	14.4%
2	11	7.8%	0	0.0%	3	6.9%	4	2.6%	10	3.6%	28	4.3%
3 or more	5	3.3%	1	2.1%	0	0.0%	5	3.2%	5	1.9%	16	2.6%
Total	141	100%	32	99%	49	100%	142	100%	280	100%	644	100%

Driver age: 21-25 years (n=757)

No. of parking tickets issued	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
0	72	63.3%	49	62.6%	27	64.4%	98	64.1%	236	76.0%	482	69.0%
1	25	21.9%	17	21.6%	8	19.9%	28	18.2%	47	14.9%	125	17.9%
2	10	8.5%	8	9.8%	3	7.3%	13	8.3%	13	4.1%	47	6.7%
3 or more	6	6.0%	4	6.0%	3	8.5%	14	9.6%	18	6.9%	45	6.2%
Total	113	100%	78	100%	41	100%	153	100%	314	100%	698	100%

Driver age: 26-60 years (n=1510)

No. of parking tickets issued	D		N (d>n)		N (n>d)		HE		LE (d)		Total	
0	207	74.1%	94	78.1%	26	69.9%	180	74.9%	661	86.0%	1168	81.0%
1	46	16.6%	16	13.7%	5	13.4%	34	14.3%	74	9.6%	175	12.1%
2	14	4.9%	7	5.8%	4	10.2%	10	4.3%	21	2.7%	56	3.9%
3 or more	12	4.3%	1	1.0%	2	6.5%	15	6.4%	13	1.8%	43	3.0%
Total	279	100%	118	100%	37	100%	239	100%	769	100%	1442	100%

For all age groups, the number of tickets received by drivers were similar for all exposure groups except LE which tended to have the least amount of tickets issued. Overall, the 21-25 year old drivers had the highest infringement rate of the three age groups for all exposure groups. Night drivers were not proportionally over- or under-represented in receiving parking tickets in any age range.

3.5.11 Traffic Infringement Tickets

The following lists the number of traffic infringement tickets received by respondents in the 12 months prior to questioning.

TABLE 3.31

NUMBER OF TRAFFIC INFRINGEMENT TICKETS RECEIVED OVER A 12 MONTH PERIOD BY AGE AND EXPOSURE GROUP

Driver age: < 21 years (n=741)

No. of traffic tickets issued	D	N (d>n)	N (n>d)	HE	LE (d)	Total
0	110 78.0%	26 79.8%	39 78.2%	96 67.9%	235 83.9%	506 78.4%
1	22 16.0%	7 20.2%	7 14.1%	28 20.1%	32 11.6%	96 14.9%
2	7 5.2%	0 0.0%	1 2.7%	10 7.0%	9 3.3%	27 4.2%
3 or more	1 0.8%	0 0.0%	3 5.0%	7 5.1%	2 0.8%	13 2.2%
Total	140 100%	33 100%	50 100%	141 100%	278 100%	642 100%

Driver age: 21-25 years (n=767)

No. of traffic tickets issued	D	N (d>n)	N (n>d)	HE	LE (d)	Total
0	77 68.0%	56 71.9%	30 71.4%	96 63.0%	250 79.8%	509 72.7%
1	24 21.3%	12 14.9%	7 17.3%	42 27.4%	43 13.9%	128 18.3%
2	9 8.0%	7 8.8%	2 5.7%	9 5.9%	15 4.7%	42 6.0%
3 or more	3 2.7%	4 4.7%	2 5.6%	6 3.6%	6 1.6%	21 3.0%
Total	113 100%	79 100%	41 100%	153 100%	314 100%	700 100%

Driver age: 26-50 years (n=1510)

No. of traffic tickets issued	D	N (d>n)	N (n>d)	HE	LE (d)	Total
0	215 77.0%	96 80.9%	30 82.3%	166 77.4%	679 88.4%	1206 83.7%
1	46 16.5%	15 13.0%	4 11.2%	38 15.7%	78 10.1%	181 12.6%
2	12 4.1%	5 4.0%	1 3.2%	8 3.3%	6 0.8%	32 2.2%
3 or more	6 2.2%	2 2.0%	1 3.2%	8 3.5%	5 0.8%	22 1.4%
Total	279 100%	118 100%	36 100%	240 100%	768 100%	1441 100%

For both young driver groups, the HE drivers had the highest rate, and the LE drivers the lowest rate, of traffic infringement tickets issued over the 12 month period.

Overall, all 21-25 year old age range exposure groups had the highest rate of infringements of the three age groups. Similar to parking infringement tickets, there was no proportional over- or under-representation in receiving traffic tickets in any age range.

5.12 Warnings

TABLE 3.32

**NUMBER OF WARNINGS RECEIVED FROM A TRAFFIC OR POLICE OFFICER
OVER A 12 MONTH PERIOD BY AGE AND EXPOSURE GROUP**

Driver age: < 21 years (n=741)												
no. of warnings	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
0	123	87.4%	27	82.2%	40	90.4%	117	83.0%	246	88.0%	553	85.9%
1	15	10.4%	5	16.0%	7	13.3%	16	12.6%	23	8.3%	68	10.6%
2	1	0.5%	0	0.0%	1	2.8%	3	2.2%	6	2.2%	11	1.7%
3 or more	2	1.7%	1	1.0%	2	3.7%	3	2.0%	4	1.5%	12	1.9%
Total	141	100%	33	100%	50	100%	141	100%	279	100%	644	100%

Driver age: 21-25 years (n=757)												
no. of warnings	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
0	101	89.2%	68	86.9%	37	87.1%	125	81.9%	263	90.3%	614	87.6%
1	9	7.5%	9	11.6%	3	7.3%	16	10.6%	22	6.9%	59	8.4%
2	3	2.2%	0	0.0%	1	2.8%	7	4.3%	7	2.4%	18	2.6%
3 or more	1	1.1%	1	1.5%	1	2.8%	5	3.2%	2	0.4%	10	1.4%
Total	114	100%	78	100%	42	100%	153	100%	314	100%	701	100%

Driver age: 26-50 years (n=1510)												
no. of warnings	D		N (d>n)		N (n>d)		HE		LE (d)	Total		
0	260	93.1%	113	95.3%	33	90.6%	224	93.3%	744	96.9%	1374	95.2%
1	17	5.9%	4	3.2%	2	4.5%	16	6.7%	19	2.5%	58	4.0%
2	1	0.5%	1	1.0%	2	5.1%	0	0.0%	1	0.1%	5	0.3%
3 or more	1	0.4%	1	0.6%	0	0.0%	0	0.0%	4	0.5%	6	0.5%
Total	279	100%	119	100%	37	100%	240	100%	768	100%	1443	100%

The <21 year old age range exposure groups tended to have the highest frequency of receiving warnings (except HE) of the three age groups. Night drivers were slightly proportionally over-represented in receiving warnings in this age range - 17.6% of drivers who received warnings, and 13.5% of the age group total, and to a lesser degree in the 26-50 age range - 14.5% compared to 11% of the age group total.

3.5.13 Most important factor for safety on Australian roads

Respondents were asked to choose, from a set of predetermined factors, the most important factor for safety on Australian roads. Table 3.33 lists the two most commonly chosen factors by member of each exposure group.

TABLE 3.33

FIRST AND SECOND MOST COMMON FACTOR CHOSEN FOR SAFETY ON AUSTRALIAN ROADS BY AGE AND EXPOSURE GROUP

Age Group	Exposure Group	Most often chosen		2nd most often chosen	
		Factor	%	Factor	%
<21	D	not drinking and driving	24	driving sensibly	8.5
	Nd	not drinking and driving	38	quick reactions	9.5
	Nn	not drinking and driving	40	advanced driving skills	10
	HE	not drinking and driving	34	making allowances for other drivers	9
	LE	not drinking and driving	33	driving sensibly	9.7
21-25	D	not drinking and driving	27	being alert	12.7
	Nd	not drinking and driving	21	driving to suit the conditions	13.1
	Nn	not drinking and driving	40	driving to suit the conditions	10.1
	HE	not drinking and driving	30	advanced driving skills	10.2
	LE	not drinking and driving	28	being alert	10.7
26-50	D	not drinking and driving	22	being alert	11.2
	Nd	not drinking and driving	24	being alert	13.2
	Nn	not drinking and driving	23	driving to suit the conditions	12.1
	HE	not drinking and driving	19	driving to suit the conditions	9
	LE	not drinking and driving	23	driving sensibly	11.2

Table 3.33 shows that not drinking and driving was the most commonly chosen factor by all exposure groups. A higher proportion of nighttime young drivers tended to select the "not drinking and driving" factor as their most important factor.

Driving sensibly, being alert and driving to suit the conditions were well supported, however not consistently within age groups or exposure groups.

3.6 DRIVING HABITS AND ATTITUDES - NIGHTDAY

N.B. For ease of presentation and interpretation, the results for rating scales have been presented as follows:

NIGHTDAY comparisons present the results for the two night groups combined, compared to the result for the "day" exposure group.

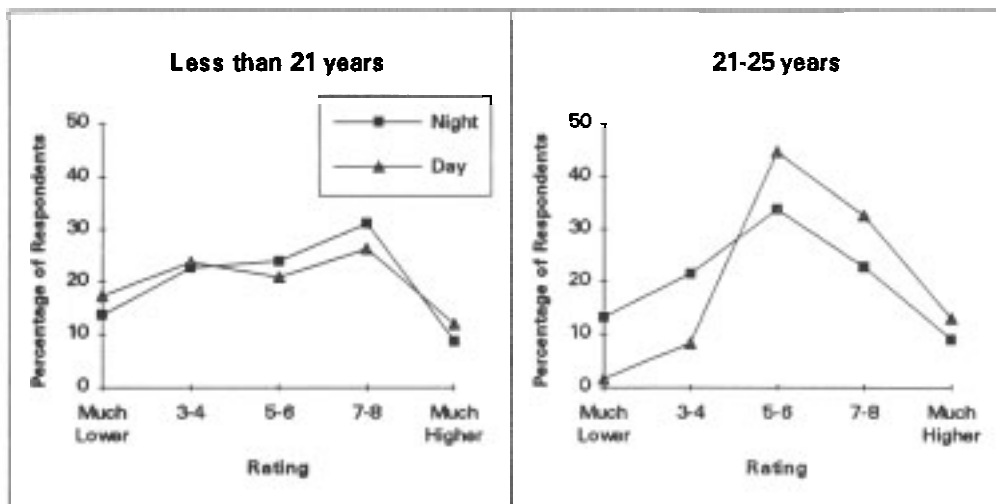
NIGHTAVG comparisons present the results for the two night exposure groups separately, compared to the average result for the other three exposure groups combined.

SUMMSTAT comparisons present the results for the two night groups combined, compared to each of the other three exposure groups and the group mean.

3.6.1 Young drivers - rate risk-taking compared to other drivers of the same sex but older than you (ie. over 30 years old)

FIGURE 3.34

DISTRIBUTION OF SELF-RATING OF RISK-TAKING COMPARED TO OTHER DRIVERS OF THE SAME AGE AND SEX BY YOUNG DAY AND NIGHT DRIVERS

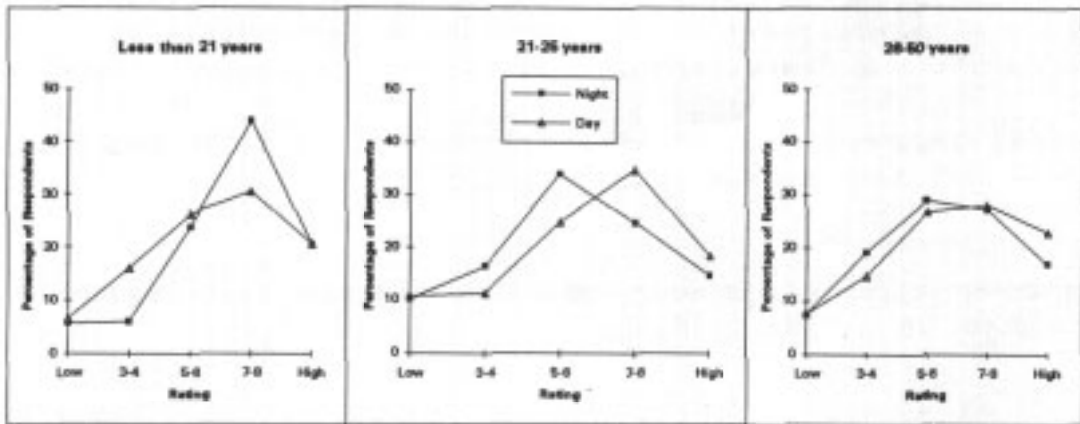


The 21-25 year old night group was more likely than the day group to rate their risk taking as lower than that of older drivers. The 21-25 year old day group was more likely than the <21 year old day group to rate their risk-taking as higher than that of older drivers.

3.6.2 City driving at night-time - degree of danger

FIGURE 3.35

DISTRIBUTION OF THE RATING OF THE DEGREE OF DANGER OF CITY DRIVING AT NIGHT-TIME BY AGE AND DAY AND NIGHT DRIVERS

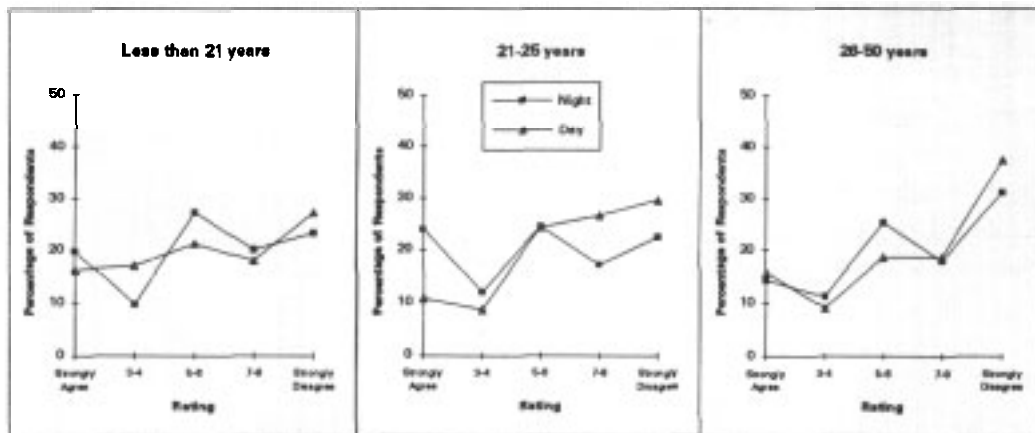


The <21 year old night drivers were more likely to rate this type of driving as having a high degree of danger compared to the day drivers. For the 21-25 year old age groups, the reverse is true - the day drivers rated this driving as highly dangerous more than the night drivers. The day and night groups do not differ in the 26-50 year old age group.

3.6.3 I think that it is easier to drive at night than during the day

FIGURE 3.36

DISTRIBUTION OF THE LEVEL OF AGREEMENT WITH THE STATEMENT 'I THINK IT IS EASIER TO DRIVE AT NIGHT THAN DURING THE DAY' BY AGE AND DAY AND NIGHT DRIVERS

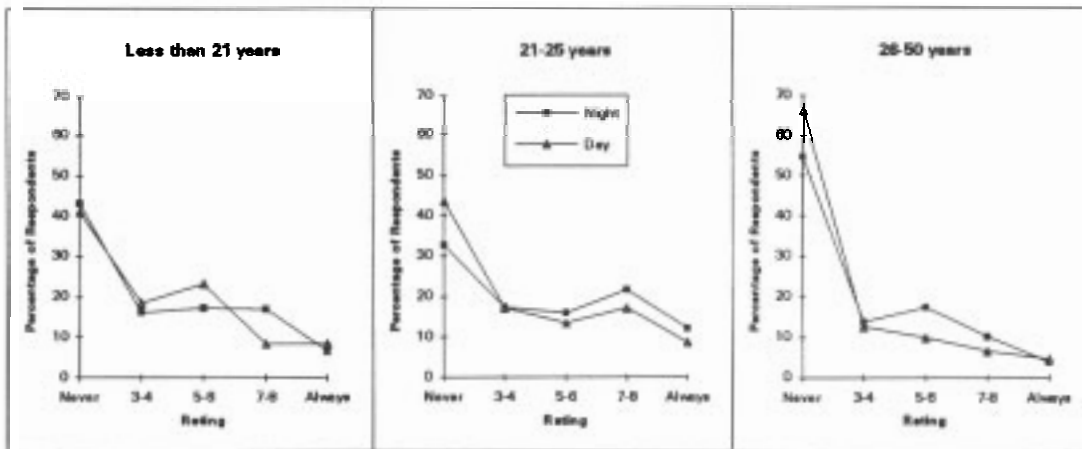


The day and night groups did not differ markedly in the youngest or oldest age ranges. For the 21-25 year old drivers, the night group is more likely to agree with this statement than the day group.

3.6.4 How often do you drive 10km/hr above the speed limit at night-time?

FIGURE 3.37

FREQUENCY DISTRIBUTION OF DRIVING 10KM/HR ABOVE THE SPEED LIMIT AT NIGHT-TIME BY AGE AND DAY AND NIGHT DRIVERS

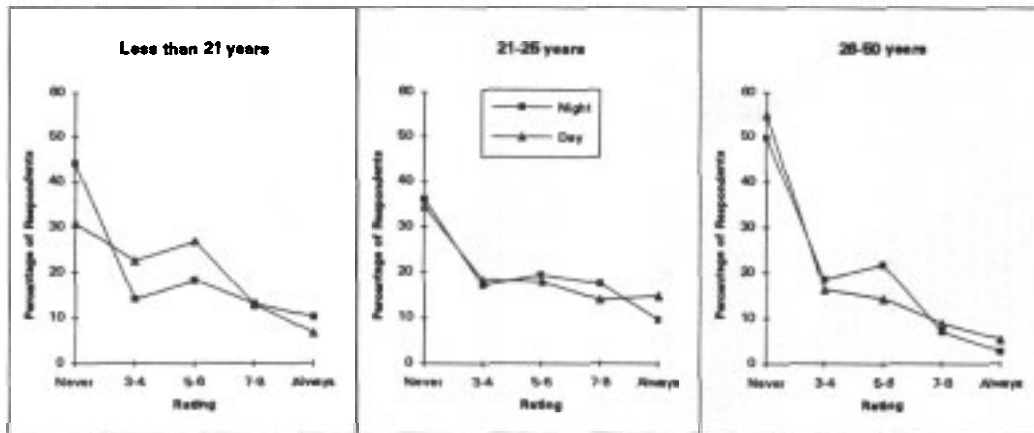


The 21-25 year old night group was more likely to say they speed at night-time than the day drivers. There were no consistent differences between exposure groups in the youngest and oldest age groups.

3.6.5 How often do you drive 10km/hr above the speed limit during the day?

FIGURE 3.38

FREQUENCY DISTRIBUTION OF DRIVING 10KM/HR ABOVE THE SPEED LIMIT DURING THE DAY BY AGE AND DAY AND NIGHT DRIVERS

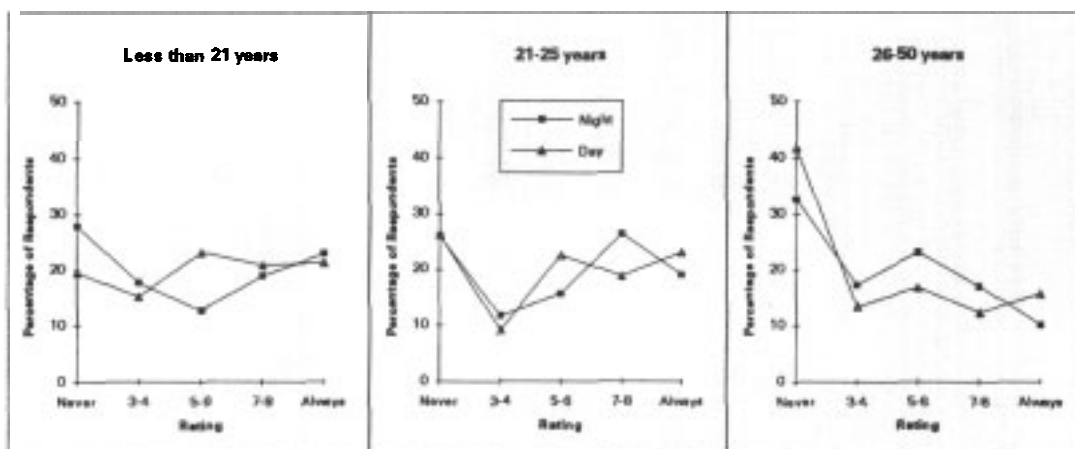


The general pattern of results for "daytime speeding" is similar to that shown in the previous set of graphs for "nighttime speeding".

3.6.6 How often do you drive 10km/hr above the speed limit on open roads?

FIGURE 3.39

FREQUENCY DISTRIBUTION OF DRIVING 10KM/HR ABOVE THE SPEED LIMIT ON OPEN ROADS BY AGE AND DAY AND NIGHT DRIVERS



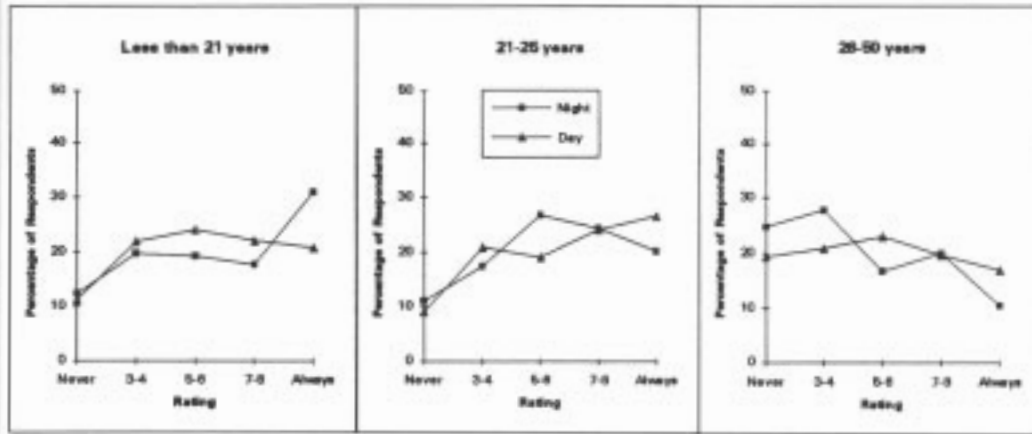
A higher proportion of the <21 year old night group responded "never" to this question when compared to the day drivers. Both young driver groups were equally likely to say

they always speed on the open road (and at a rate approximately double of the 26-50 year old age group).

3.6.7 How often do you get angry at the actions of other drivers?

FIGURE 3.40

FREQUENCY DISTRIBUTION OF GETTING ANGRY AT THE ACTIONS OF OTHER DRIVERS BY AGE AND DAY AND NIGHT DRIVERS



The <21 year old night group was more likely to respond on the extreme end of the scale that they always get angry at the actions of other drivers. A majority of drivers in both groups in the <21 year old age group tended to say that they do get angry rather than not. This latter pattern was also present in the 21-25 year old age range, however the night group was less likely than the day group to report that they always get angry.

Distributions for both groups in the 26-50 year old age group show the reverse gradient as drivers become more likely to say they don't get angry rather than they do get angry. The night group continues to be less likely to always get angry than the day group.

3.7 DRIVING HABITS AND ATTITUDES - NIGHTAVG

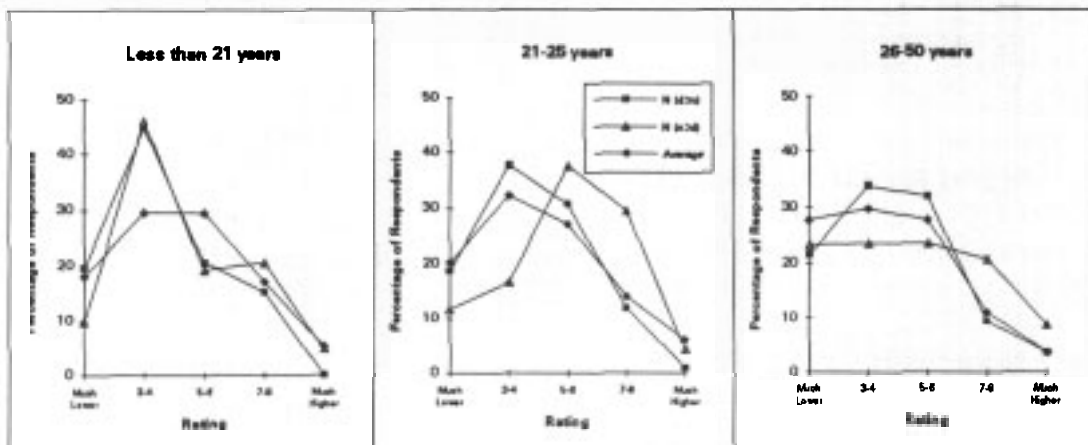
Note: Compared to the combined night group in the previous section, the independent night groups in this section (Nd and Nn) are susceptible to fluctuations in distribution due to the smaller sample sizes.

3.7.1 Rate your risk-taking compared to other drivers of your age and sex

Overall, in the <21 year old age group, the two night groups were more likely to rate on the 'lower risk-taking' end of the scale than the combined groups. In the 21-25 age group, the Nn drivers were more likely to rate their risk-taking on the 'higher' end of the scale than the Nd or combined group drivers. This difference is also present, to a lesser degree, in the 26-50 age range.

FIGURE 3.41

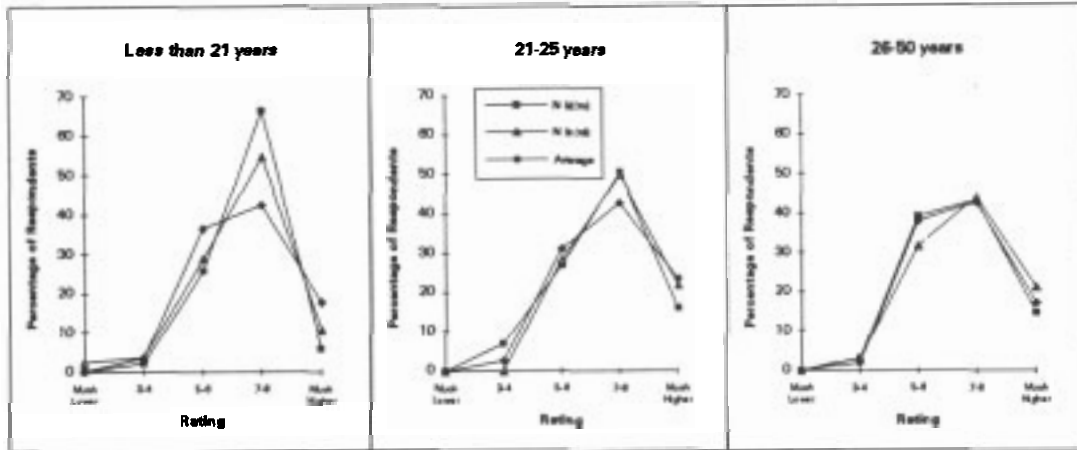
DISTRIBUTION OF SELF-RATING OF RISK-TAKING COMPARED TO OTHER DRIVERS OF THE SAME AGE AND SEX BY AGE AND Nd, Nn AND COMBINED GROUPS



3.7.2 Rate your driving skills compared to other drivers of your age and sex

FIGURE 3.42

DISTRIBUTION OF SELF-RATING OF DRIVING SKILLS COMPARED TO OTHER DRIVERS OF THE SAME AGE AND SEX BY AGE AND Nd, Nn AND COMBINED GROUPS

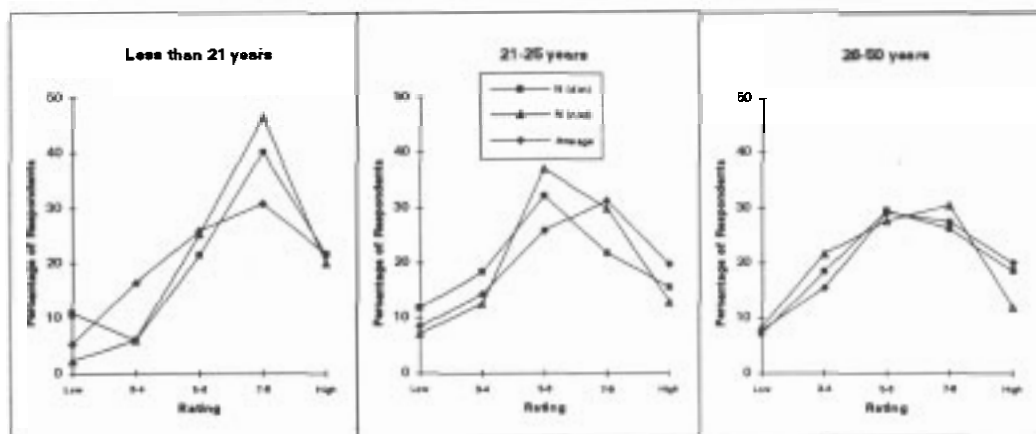


All groups in all age ranges were very unlikely to rate their driving skills lower than those of other drivers of the same age and sex. The most common rating points for all groups were 7 and 8 on the 'higher' end of the scale. The Nd drivers in the <21 year old age range were most likely to rate this point, followed by the Nn then combined group drivers. With age, these differences diminished, as drivers became more likely to rate their driving skills as similar (points 5-6) to other drivers.

3.7.3 City driving at night-time - degree of danger

FIGURE 3.43

DISTRIBUTION OF THE DEGREE OF DANGER OF CITY DRIVING AT NIGHT-TIME BY AGE AND Nd, Nn AND COMBINED GROUPS

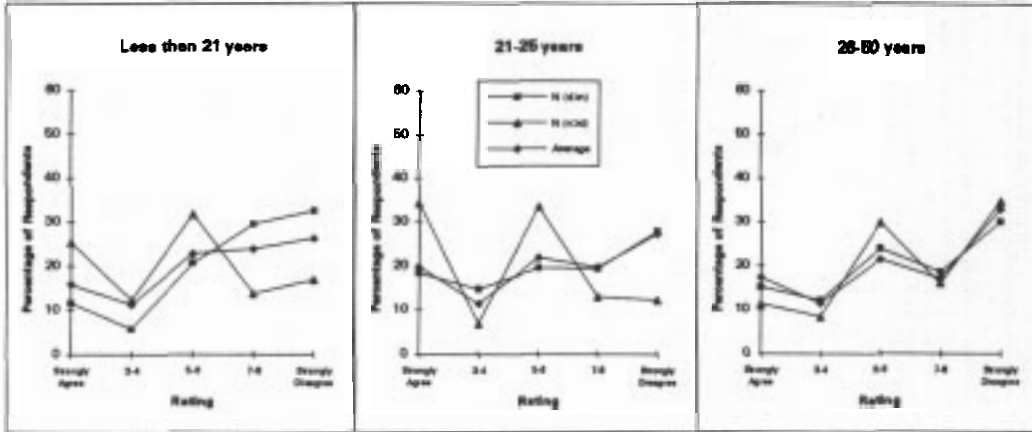


In the <21 year old age range, the two night groups were more likely to rate that city driving at night-time has a high degree of danger. The distributions become more similar with age.

3.7.4 I think that it is easier to drive at night than during the day

FIGURE 3.44

DISTRIBUTION OF LEVEL OF AGREEMENT WITH THE STATEMENT 'I THINK THAT IT IS EASIER TO DRIVE AT NIGHT THAN DURING THE DAY' BY AGE AND Nd, Nn AND COMBINED GROUPS

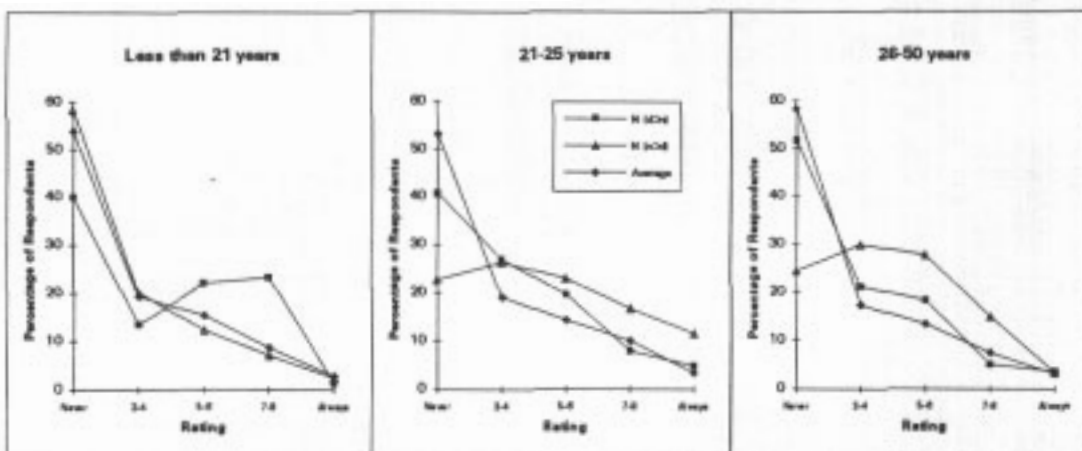


The <21 year old Nn group is most likely to agree that it is easier to drive at night rather than during the day, and most likely to disagree. Conversely, the <21 year old Nd group is both the most likely to disagree, and the least likely to agree with the statement. In the 21-25 year old age group, Nn continues to be most likely to strongly agree and least likely to disagree. The Nd and combined group distributions are very similar. The 26-50 year old age group is characterised by very similar distributions for all groups.

3.7.5 How often do you feel tired when driving at night-time?

FIGURE 3.45

FREQUENCY DISTRIBUTION OF FEELING TIRED WHEN DRIVING AT NIGHT-TIME BY AGE AND Nd, Nn AND COMBINED GROUPS



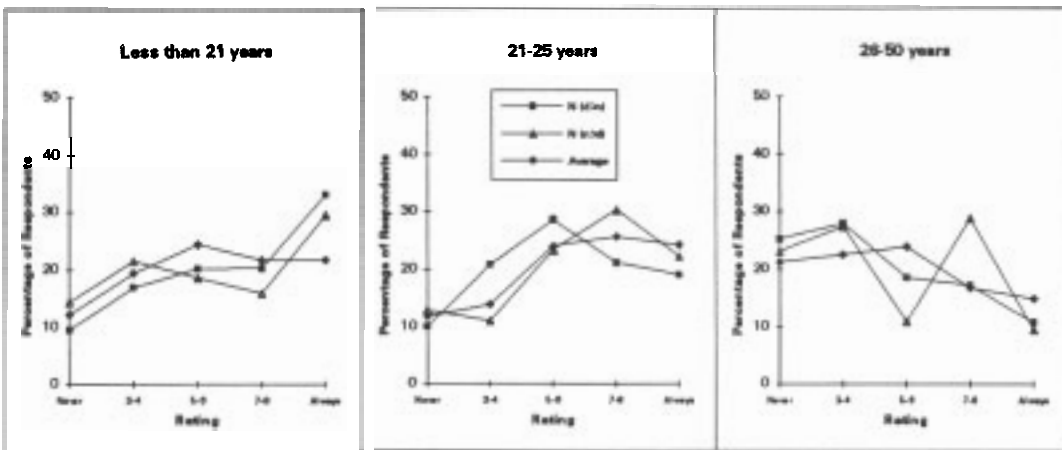
More than 50% of the respondents of the combined group in each age range reported that they never feel tired when driving at night-time. The <21 year old Nn and combined groups have a very similar distribution. The Nd group tended to report that they do get tired proportionally more than the other two groups. In the 21-25 and 26-50 year old age ranges, it was the Nn groups that was most likely to report that they never feel tired, and therefore more often do feel tired when driving at night-time.

3.7.6 How often do you get angry at the actions of other drivers?

The two night groups in the <21 year old age range were more likely to report responses on the extreme end of the scale that they always get angry at the actions of other drivers. All other points were relatively similar. The only other result of interest was that the 21-25 year old Nd group was slightly less likely to report that they do get angry (7-10) than the other groups.

FIGURE 3.46

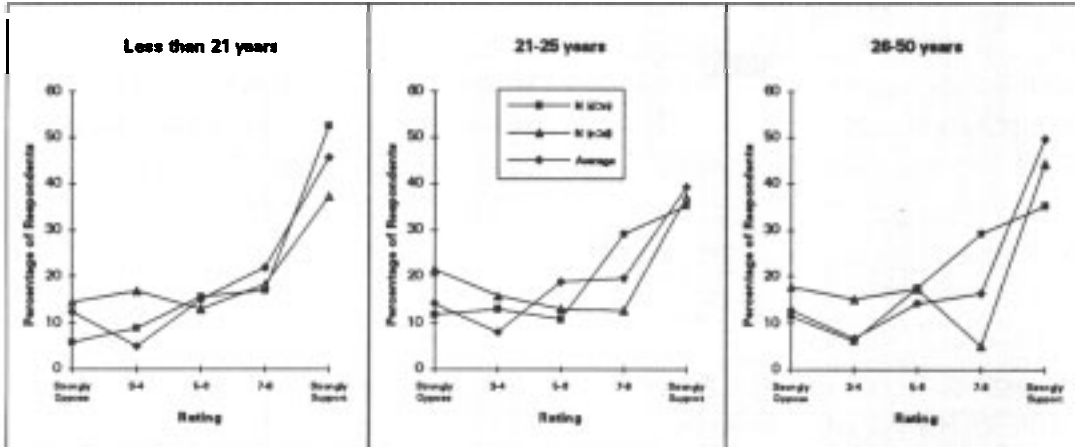
FREQUENCY DISTRIBUTION OF GETTING ANGRY AT THE ACTIONS OF OTHER DRIVERS BY AGE AND Nd, Nn AND COMBINED GROUPS



3.7.7 Do you support or oppose speed cameras/radar as a means of improving safety on Australian roads?

FIGURE 3.47

LEVEL OF SUPPORT/OPPOSITION TO SPEED CAMERAS/RADAR AS A MEANS OF IMPROVING SAFETY ON AUSTRALIAN ROADS BY AGE AND Nd, Nn AND COMBINED GROUPS

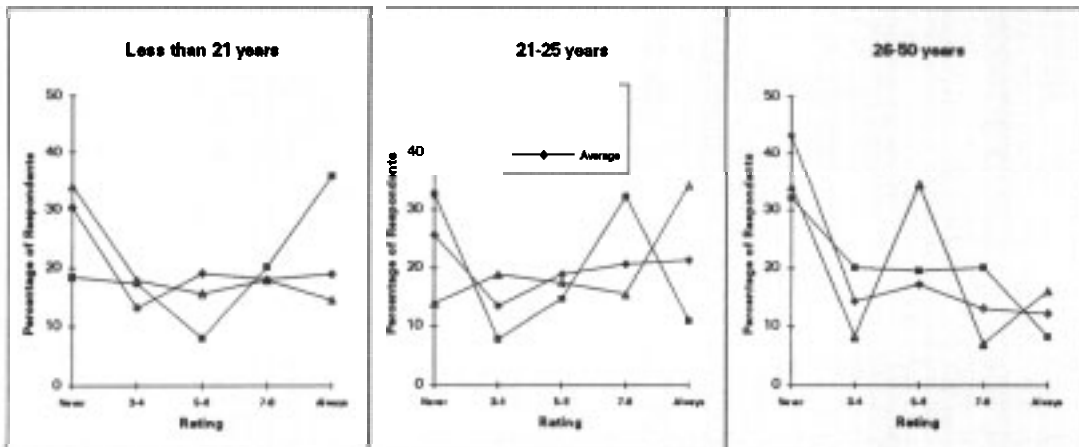


The <21 Nn drivers had a slight tendency to less often strongly support the use of speed cameras or radar, and more often oppose them. The Nd group was least likely to strongly oppose their use, and most likely to strongly support them. A similar pattern was found in the 21-25 age range, except the Nd drivers more often rated on points 7-8 of support, rather than the extreme points of the scale. The 26-50 year old Nn group continues to be slightly more likely to oppose the use of speed cameras or radar.

3.7.8 How often do you drive 10km/hr above the speed limit on open roads?

FIGURE 3.48

DISTRIBUTION OF DRIVING 10KM/HR ABOVE THE SPEED LIMIT ON OPEN ROADS BY AGE AND Nd, Nn AND COMBINED GROUPS



The most noticeable characteristic of this set of charts is the contrasting distributions of the Nd group in the two younger age ranges. The <21 year old Nd group was least likely to report that they never drive 10km/hr above the speed limit on open roads, and the most likely to report that they always do so. The 21-25 year old Nd group, conversely, was the most likely to report that they never drive 10km/hr above the speed limit on open roads, and the least likely to report that they always do so.

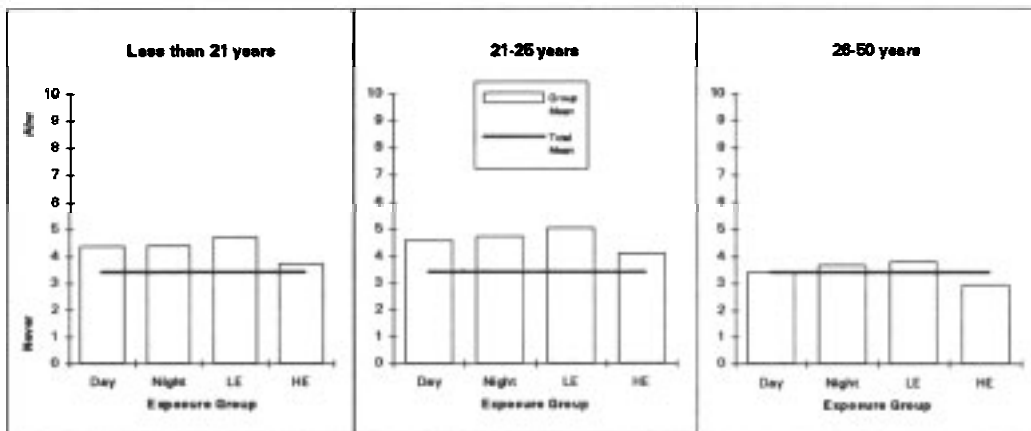
3.8 DRIVING HABITS AND ATTITUDES - SUMMARY STATISTICS

Note: The 'Night' group in this section is a combined Nn and Nd group.

3.8.1 How often do you drive 10km/hr above the speed limit?

FIGURE 3.49

AVERAGE FREQUENCY OF DRIVING 10KM/HR ABOVE THE SPEED LIMIT BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS



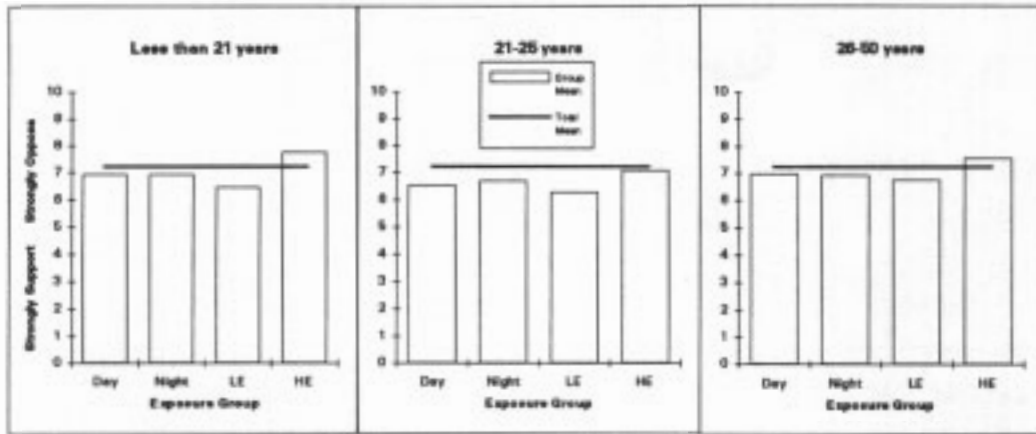
For all age groups, the HE drivers had a slightly greater tendency to report that they don't drive 10km/hr above the speed limit. The LE drivers reported the highest average likelihood to drive 10km/hr above the speed limit.

All young driver groups responded as more likely to drive 10km/h above the speed limit than the total group mean.

3.8.2 Do you support or oppose speed cameras/radar as a means of improving safety on Australian roads?

FIGURE 3.50

AVERAGE LEVEL OF SUPPORT OR OPPOSITION TO SPEED CAMERAS/RADAR AS A MEANS OF IMPROVING SAFETY ON AUSTRALIAN ROADS BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS



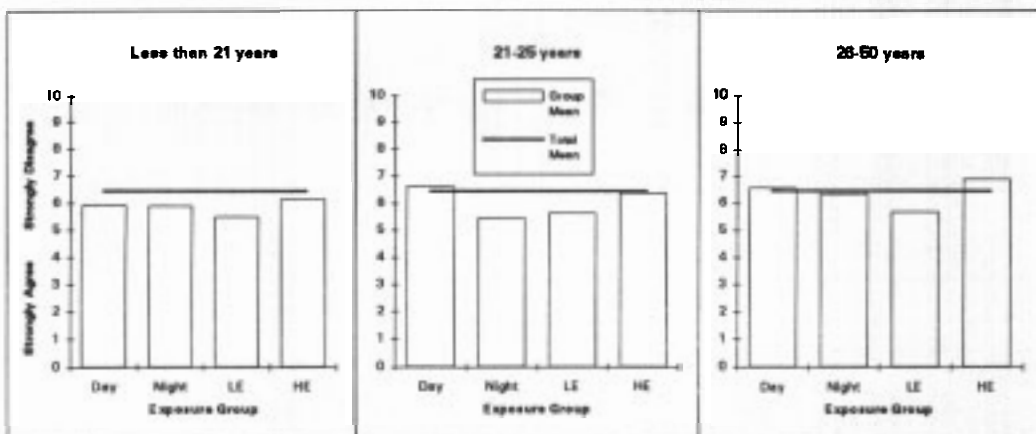
The HE drivers displayed the greatest level of opposition for speed cameras or radar in all three age ranges. LE drivers has a slight tendency to support them more strongly. The day and night groups' average level of support were quite similar in each age range.

3.8.3 I think that it is easier to drive at night than during the day

All groups in the <21 year old age range rated below the total mean, indicating that they agreed more with the statement than the total sample. The day and HE drivers disagreed with this statement more than the night and LE drivers in all age groups.

FIGURE 3.51

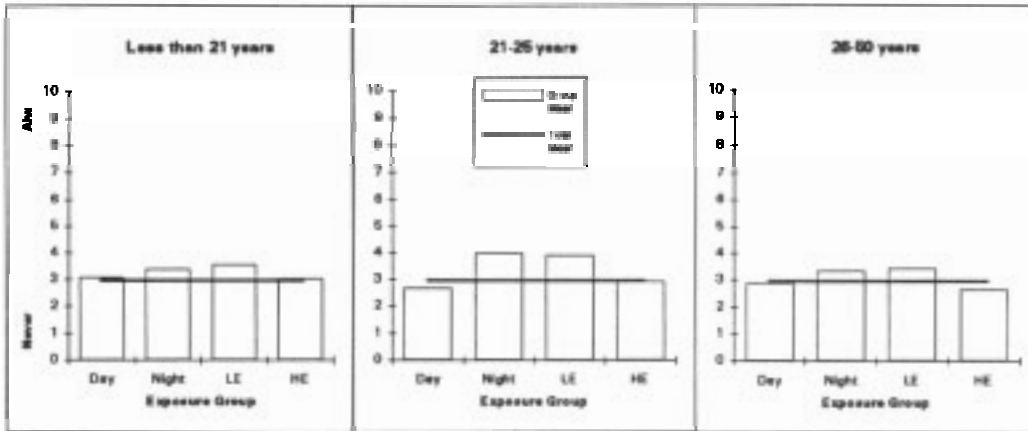
AVERAGE LEVEL OF AGREEMENT WITH THE STATEMENT 'I THINK IT IS EASIER TO DRIVE AT NIGHT THAN DURING THE DAY' BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS



3.8.4 How often do you feel tired when driving at night-time?

FIGURE 3.52

AVERAGE FREQUENCY OF FEELING TIRED WHEN DRIVING AT NIGHT-TIME BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS

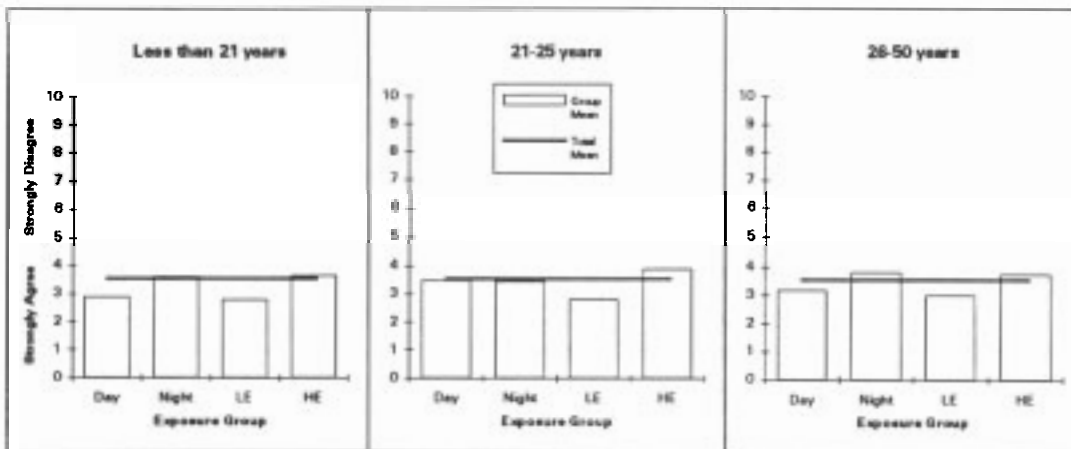


The Night and LE groups were the most likely to feel tired when driving at night-time in all age ranges, and particularly in the 21-25 year old age group. The Day and HE group averages were on or just below the total mean in each age range.

3.8.5 I prefer to drive rather than be a passenger in a car

FIGURE 3.53

DISTRIBUTION OF THE LEVEL OF AGREEMENT WITH THE STATEMENT 'I PREFER TO DRIVE RATHER THAN BE A PASSENGER IN A CAR' BY AGE AND EXPOSURE GROUPS



In each age range, the Day and LE groups more strongly preferred to drive rather than be a passenger. Both groups were below the total mean in each age range. Except for the 21-25 year old Night group, all HE and night groups were above the total mean.

3.9 PERSONALITY CHARACTERISTICS - NIGHTDAY

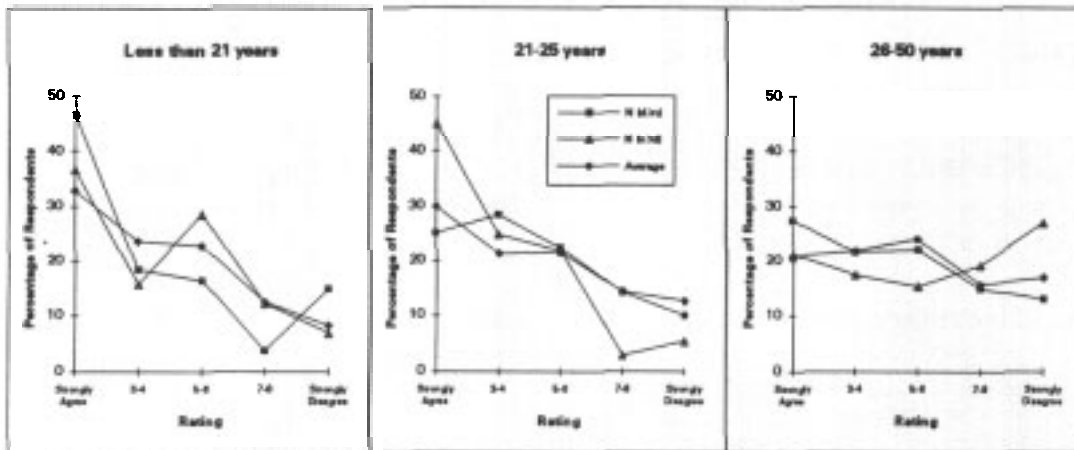
There were no personality characteristic variables that showed any remarkable differences for the day vs combined night group comparison.

3.10 PERSONALITY CHARACTERISTICS - NIGHTAVG

3.10.1 I get annoyed when I'm not allowed to do what I want to

FIGURE 3.54

DISTRIBUTION OF THE LEVEL OF AGREEMENT WITH THE STATEMENT 'I GET ANNOYED WHEN I'M NOT ALLOWED TO DO WHAT I WANT TO' BY AGE AND EXPOSURE GROUPS

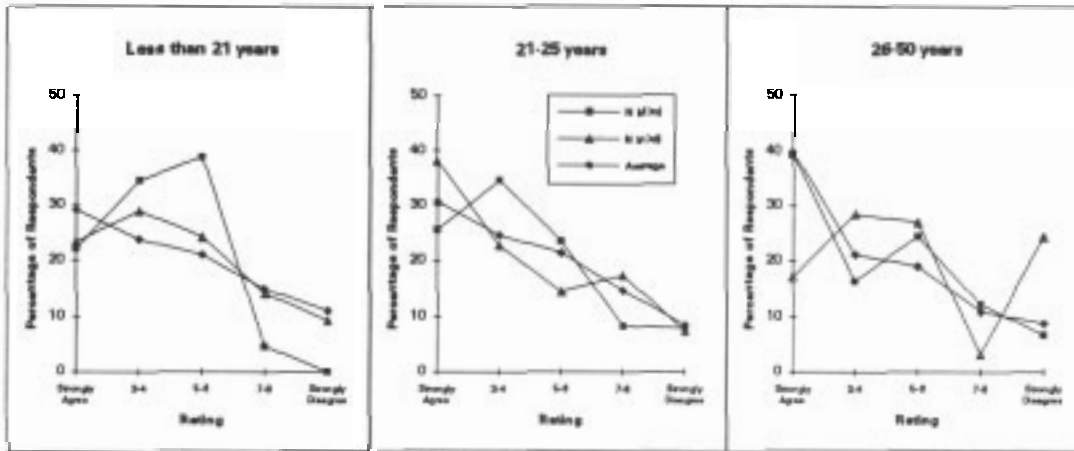


The <21 year old Nd group displayed a tendency to respond at the extreme ends of the scale as they were most likely to both strongly agree and strongly disagree with this statement. Overall, all groups in both young driver groups tended to agree with the statement rather than disagree. In the 21-25 year old age range, the Nn group was most likely to strongly agree with the statement, and least likely to disagree. The distributions for all groups flatten out in the 26-50 age range, with the Nn group being most likely to disagree.

3.10.2 I like my life to be planned and organised

FIGURE 3.55

DISTRIBUTION OF THE LEVEL OF AGREEMENT WITH THE STATEMENT 'I LIKE MY LIFE TO BE PLANNED AND ORGANISED', BY AGE AND EXPOSURE GROUPS



Approximately 40% of the <21 year old Nd group responded at the centre points on this scale, and were least likely to disagree with the statement. The 21-25 year old groups did not show any consistent differences. The only result of note in the oldest age group is the Nn group which was much less likely than the other groups to report on the 'strongly agree' end of the scale and much more likely to report on the 'strongly disagree' end.

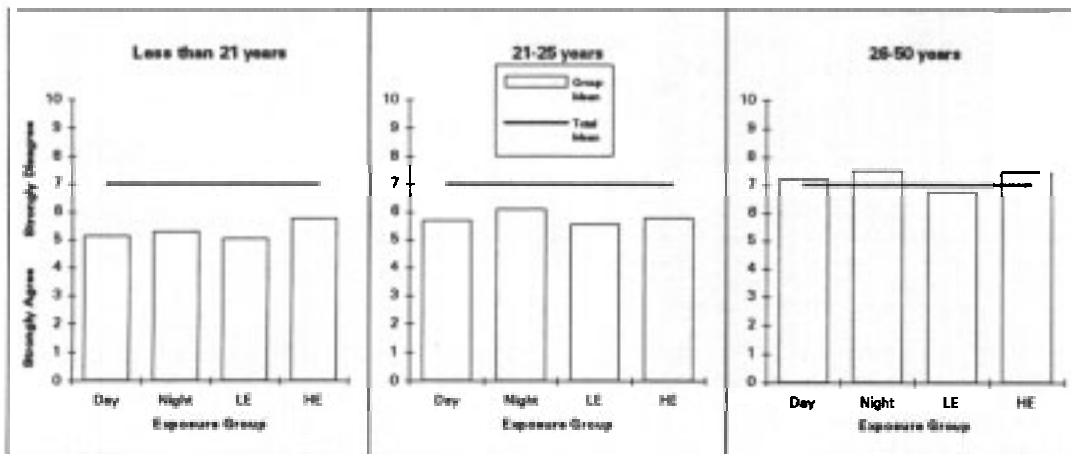
3.11 PERSONALITY CHARACTERISTICS - SUMMSTAT

3.11.1 It is OK to occasionally get very drunk

All groups in the two young driver groups agreed with this statement more strongly than the total mean. The Night and HE groups had a slight tendency to disagree more strongly than the Day and LE in each age range.

FIGURE 3.56

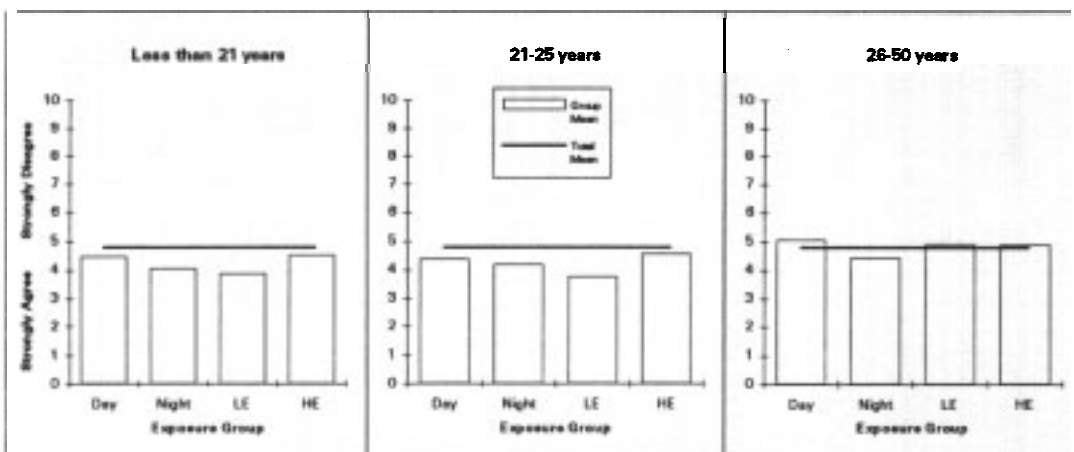
AVERAGE LEVEL OF AGREEMENT WITH THE STATEMENT 'IT'S OK TO OCCASIONALLY GET VERY DRUNK' BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS



3.11.2 I like to do things on the spur of the moment

FIGURE 3.57

AVERAGE LEVEL OF AGREEMENT WITH THE STATEMENT 'I LIKE TO DO THINGS ON THE SPUR OF THE MOMENT' BY TOTAL SAMPLE, AGE AND EXPOSURE GROUPS



In the two young driver groups, the Night and LE drivers tended to agree with this statement more than the Day and HE drivers. All exposure groups in these age groups were below the total mean. Only the Night group in the 26-50 age range remained below the total mean.

3.12 SUMMARY INFORMATION

3.12.1 Proportional Involvement

The following table contains a summary of the proportional involvement of night drivers, compared to the proportion of each age group total, for each variable presented in sections 3.1, 3.2 and 3.3. The variables deemed to be "significantly" different (on a descriptive level only) or that displayed a trend across the age groups, have been marked with an asterisk.

TABLE 3.58

**PROPORTIONAL INVOLVEMENT OF NIGHT DRIVERS BY VARIABLE
AND AGE GROUP WITH AGE GROUP PROPORTION
OF NIGHT DRIVERS AS A COMPARISON**

Characteristics of Driver	<21 years of age		21-25 years of age		26-50 years of age	
	Proportional Involvement	Proportion of age group	Proportional Involvement	Proportion of age group	Proportional involvement	Proportion of age group
Sex = male	13.3	13	17.3	17	11.9	11
Post secondary education	12.0	13	15.6	17	10.0	11
Full-time students	16*	13	23.6*	17	15*	11
Annual income of \$21,000 or more	8.7*	13	17.0	17	12.4	11
Married	1.8*	13	8.7*	17	8.7	11
Children under 12 years old	7.1*	13	8.7*	17	7.3*	11
Speak language other than English at home	6.3*	13	27.7*	17	11.6	11
Pay rent	12.5	13	15.8	17	14.2*	11
Pay a Mortgage	4.7*	13	17.0	17	10.0	11
Have regular access to a car	12.8	13	16.0	17	10.7	11
Participate in organised sports	13.7	13	20.1*	17	11.0	11
Wear glasses/contact lenses	18.4*	13	15.7	17	11.5	11
Smoke	14.4	13	15.5	17	11.0	11
Characteristics of Vehicle						
Car is more than 10 years old	16.7*	13	18.3	17	11.0	11
Car has personalised number plate	18.4*	13	25.5*	17	11.4	11
Without comprehensive insurance cover	11.9	13	19.4	17	10.9	11
Car is serviced by self	10.7	13	12.9*	17	9.6	11
Car is washed weekly	11.0	13	19.2	17	9.2	11
Car is waxed and polished weekly/fortnightly	12.5	13	13.8*	17	9.0	11

	<21 years of age		21-25 years of age		26-50 years of age	
	Proportional involvement	Proportion of age group	Proportional Involvement	Proportion of age group	Proportional involvement	Proportion of age group
Car has been modified	15.7*	13	16.7	17	8.7	11
Had a car before obtaining driver's licence	14.1	13	16.5	17	10.7	11
Characteristics of Driving Exposure						
Made a long trip (200+ km) within last month	11.1	13	15.1	17	11.2	11
This long trip was not work related	12.9	13	18.1	17	11.1	11
Drive own car	15.7*	13	20.2*	17	14.1*	11
Just go for a drive regularly	15.5	14	18.8	19	17.6*	13
Would consult street directory or follow direction most of the time/always	7.9*	14	19.6	19	12.0	13
Always under pressure to get to destination	18.9*	14	15.2*	19	14.7	13
Carry 2 or more passengers	13.5	14	16.5	19	10.8	13
Usually carry male passengers_ (male drivers)	17.1	15	24.7*	18	17.2*	13
Usually carry male passengers_ (female drivers)	16.3*	12	20.8	20	5.9*	11
Passengers are usually friends	16.9*	13	22.1*	17	24.4*	11
Issued with 1 or more parking tickets in the last 12 months	13.0	13	19.8	17	12.8	11
Issued with 1 or more traffic tickets in the last 12 months	13.2	13	17.8	17	11.9	11
Issued with 1 or more warnings in the last 12 months	17.6*	13	17.2	17	14.5*	11
Loud volume level on radio/cassette	13.6	13	17.8	17	8.9	11

3.12.2 Variable summary and 'expected' differences

The next set of tables present a summary of the proportions of night and day drivers on each variable presented in sections 3.1, 3.2 and 3.3. The tables, one for each age group, include a "model" which is the expected direction of a difference between the night and day drivers. These assumed directions do not necessarily have empirical support, however we have been prepared to speculate on what this direction may be for some variables. Some variables could easily have produced differences in either direction, and these have been labelled with a question mark.

TABLE 3.59a

SIZE AND DIRECTION OF PROPORTIONAL DIFFERENCE BETWEEN DAY AND NIGHT DRIVERS, DRIVERS UNDER 21 YEARS OF AGE

Variable	:21 year: of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Characteristics of Driver					
Sex = male	N > D	No	-1.8	54.5	52.7
Post secondary education	?	?	-17.1	38.9	21.8
Annual income of \$21,000 or more	?	?	-4.0	10.7	6.7
Not married	N > D	Yes	6.3	92.2	98.5
No children	N > D	Yes	2.2	94.9	97.1
Speak language other than English at home	?	?	-6.8	12.8	6.0
Pay rent	?	?	-5.6	52.6	47.0
No mortgage	N > D	Yes	2.4	96.1	98.5
Participate in organised sports	N > D	Yes	5.2	48.5	53.7
Had a car before obtaining driver's licence	N > D	Equal	0.0	32.7	32.7
Smoke	N > D	No	-2.2	35.6	33.4
Characteristics of Vehicle					
Car is more than 10 years old	N > D	Yes	10.9	63.1	74.0
Car has personalised number plate	N > D	Yes	3.0	5.6	8.6
Without comprehensive insurance cover	N > D	Yes	1.3	55.0	56.3
Car is serviced by self	N > D	No	-3.9	19.4	15.5
Car is washed weekly	N > D	No	-1.8	19.4	17.6
Car is waxed and polished weekly/fortnightly	N > D	No	-1.5	9.7	8.2
Car has been modified	N > D	Yes	3.8	15.8	19.6

Variable	: 21 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Characteristics of Driving Exposure					
Made a long trip (200+ km) within last month	?	?	-11.0	42.4	31.4
This long trip was not work related	N>D	Yes	4.9	92.9	97.8
Drive own car	N>D	Yes	4.7	45.2	49.8
Just go for a drive regularly	N>D	Equivalent	-0.6	16.0	15.4
Would consult street directory or follow direction most of the time/always	?	?	-5.3	9.7	4.4
Always under pressure to get to destination	D>N	No	-4.5	8.3	12.8
Carry more than 2 passengers	N>D	Equivalent	0.6	30.3	30.8
Usually carry male passengers	N>D	No	-9.7	31.3	21.5
Passengers are usually friends	N>D	Yes	9.9	22.7	32.6
Issued with 1 or more parking tickets in the last 12 months	N>D	No	-2.8	25.7	22.9
Issued with 1 or more traffic tickets in the last 12 months	N>D	Equivalent	-0.9	22.0	21.1
Issued with 1 or more warnings in the last 12 months	N>D	Yes	6.3	12.6	18.9
Loud volume level on radio/cassette	N>D	Yes	2.8	32.4	35.2

TABLE 3.59b

SIZE AND DIRECTION OF PROPORTIONAL DIFFERENCE BETWEEN DAY AND NIGHT DRIVERS, DRIVERS 21-25 YEARS OF AGE

Variable	21-25 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Characteristics of Driver					
Sex = male	N>D	No	-4.4	55.7	51.3
Post secondary education	?	?	5.7	48.3	54.0
Annual income of \$21,000 or more	?	?	-17.4	64.9	47.5

Variable	21-25 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Not married	N>D	Yes	23.4	60.1	83.5
No children	N>D	Yes	10.8	78.9	89.7
Speak language other than English at home	?	?	10.3	14.9	25.2
Pay rent	?	?	-7.4	72.3	64.9
No mortgage	N>D	Yes	3.7	80.1	83.8
Participate in organised sports	N>D	Yes	12.1	40.7	52.8
Had a car before obtaining driver's licence	N>D	Yes	1.5	27.0	28.5
Smoke	N>D	No	-5.8	44.2	38.4
Characteristics of Vehicle					
Car is more than 10 years old	N>D	Yes	1.3	53.4	54.7
Car has personalised number plate	N>D	Yes	2.4	7.6	10.0
Without comprehensive insurance cover	N>D	No	-7.8	42.4	34.6
Car is serviced by self	N>D	No	-3.7	21.6	17.9
Car is washed weekly	N>D	Yes	2.3	18.6	20.9
Car is waxed and polished weekly/fortnightly	N>D	No	-2.3	9.2	6.9
Car has been modified	N>D	Yes	1.9	15.1	17.0
Characteristics of Driving Exposure					
Made a long trip (200+ km) within last month	?	?	-13.5	54.7	41.2
This long trip was not work related	N>D	Yes	13.2	77.9	91.1
Drive own car	N>D	Yes	11.7	45.6	57.3
Just go for a drive regularly	N>D	No	-1.2	12.9	11.7
Would consult street directory or follow direction most of the time/always	?	?	1.9	8.9	10.7
Always under pressure to get to destination	D>N	Yes	3.3	13.0	9.6
Carry more than 2 passengers	N>D	No	-2.4	24.3	21.9
Usually carry male passengers	N>D	Yes	2.4	30.4	32.8
Passengers are usually friends	N>D	Yes	9.0	12.0	21.0
Issued with 1 or more parking tickets in the last 12 months	N>D	Equal	0.0	36.8	36.8

Variable	21-25 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Issued with 1 or more traffic tickets in the last 12 months	N > D	No	-3.7	32.0	28.3
Issued with 1 or more warnings in the last 12 months	N > D	Yes	2.3	10.8	13.1
Loud volume level on radio/cassette	N > D	Yes	5.0	18.4	23.4

TABLE 3.59c

SIZE AND DIRECTION OF PROPORTIONAL DIFFERENCE BETWEEN DAY AND NIGHT DRIVERS, DRIVERS 26-50 YEARS OF AGE

Variable	26-50 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Characteristics of Driver					
Sex = male	N > D	Yes	1.4	53.6	55.0
Post secondary education	?	?	-0.7	47.7	47.0
Annual income of \$21,000 or more	?	?	4.4	57.7	62.1
Not married	N > D	Yes	19.8	18.1	37.9
No children	N > D	Yes	22.3	42.2	64.5
Speak language other than English at home	?	?	0.1	17.0	17.1
Pay rent	?	?	15.3	28.1	43.4
No mortgage	N > D	Yes	7.9	49.8	57.7
Participate in organised sports	N > D	Equivalent	0.1	35.8	35.9
Had a car before obtaining driver's licence	N > D	No	-3.2	26.3	23.1
Smoke	N > D	No	-1.4	35.5	34.1
Characteristics of Vehicle					
Car is more than 10 years old	N > D	Yes	10.1	36.0	46.1
Car has personalised number plate	N > D	No	-0.8	7.9	7.1
Without comprehensive insurance cover	N > D	Equivalent	0.2	29.1	29.3
Car is serviced by self	N > D	No	-2.1	20.4	18.3

Variable	26-50 years of age				
	Expected direction of difference	Direction Consistent With Model	Size of Difference	Actual % Day	Difference % Night
Car is washed weekly	N > D	No	-5.4	20.6	15.2
Car is waxed and polished weekly/fortnightly	N > D	No	-2.0	7.0	5.0
Car has been modified	N > D	No	-2.5	9.4	6.9
Characteristics of Driving Exposure					
Made a long trip (200+ km) within last month	?	?	-6.5	50.8	44.3
This long trip was not work related	N > D	Yes	1.7	81.9	83.6
Drive own car	N > D	Yes	16.6	37.2	53.8
Just go for a drive regularly	N > D	Yes	2.8	7.1	9.9
Would consult street directory or follow direction most of the time/always	?	?	-1.5	11.7	10.2
Always under pressure to get to destination	D > N	Yes	1.5	14.6	13.1
Carry more than 2 passengers	N > D	No	-9.1	40.0	31.0
Usually carry male passengers	N > D	Yes	8.4	16.8	25.2
Passengers are usually friends	N > D	Yes	5.4	1.1	6.4
Issued with 1 or more parking tickets in the last 12 months	N > D	No	-2.7	25.8	23.1
Issued with 1 or more traffic tickets in the last 12 months	N > D	No	-3.9	22.8	18.9
Issued with 1 or more warnings in the last 12 months	N > D	Equivalent	-0.7	6.8	6.1
Loud volume level on radio/cassette	N > D	Equivalent	0.3	8.1	8.4

3.13 RANDOM BREATH TESTING DRIVER INTERVIEW DATA

3.13.1 Introduction

As already discussed (*see method section*) residential survey exposure groups were derived from analyses of self-reported driving exposure. This was all performed on a *post hoc* basis, and there is no empirical evidence that the resultant splits are the most valid disaggregations possible.

As a means of testing the validity of the group splits, an additional survey was conducted. Active drivers were surveyed at Random Breath Testing stations, and were asked to answer a shorter version of the residential survey, with questions pertaining to the particular trip being undertaken included. This method of sampling provides 'natural' day and night samples, in that drivers are sampled proportionally to their level of exposure. Thus, those sampled at night can be assumed to have a higher night-time exposure, and therefore be night drivers.

It was not expected that the two survey forms would produce identical results. Each was filled out in different circumstances, requiring different levels of recall of driving behaviours and conditions. Furthermore, the residential survey data related to respondent's driving in general over a one week period, whereas the RBT survey focussed directly on the conditions and characteristics of the trip being undertaken at the time of questioning.

3.13.2 Results

This section provides summary data for the Residential and RBT night groups. An extended table displaying these groups along with the two corresponding day groups is in Appendix E.

Tables 3.60 and 3.61 show the comparison of Residential and RBT night groups for each variable.

TABLE 3.60

**COMPARISON OF NIGHT DRIVERS FROM RESIDENTIAL AND RBT SAMPLES
BY VARIABLE AND AGE GROUP**

	Proportion of Group					
	<21 years of age		21-25 years of age		!6-50 years of age	
	Residential Night n = 86	RBT Night n = 80	Residential Night n = 122	RBT Night n = 154	Residential Night n = 159	RBT Night n = 229
Characteristics of Driver						
Sex = male	52.4	49.0	52.0	49.0	55.0	48.0
Post secondary education	18.0	55.0	34.4	58.1	33.3	37.6
Annual income of \$21,000 or more	6.0	15.2	47.5	58.9	62.2	77.5
Married	1.2	2.5	16.5	16.1	62.2	70.3
Children under 12 years old	2.4	1.2	10.0	7.1	35.3	35.4
Pay rent	53.0	35.0	65.0	58.7	56.4	31.4
Mortgage	1.2	1.3	16.5	11.0	42.3	49.3
Full-time students	33.3	55.7	14.0	19.0	1.3	1.7
Unemployed	8.6	2.5	5.8	2.0	4.5	2.6
Smoke	33.4	31.6	38.4	35.5	34.1	31.1
Characteristics of Vehicle						
Car has personalised number plate	8.6	18.8	10.0	21.3	7.1	12.2
Car is serviced by self	15.5	12.8	17.9	20.4	18.3	14.2
Car is washed weekly	17.6	23.8	20.9	20.0	15.2	14.8
Car is waxed and polished weekly/fortnightly	8.2	13.8	6.9	7.7	5.0	6.1
Car has been modified	19.6	17.5	17.0	18.0	6.9	11.4

	Proportion of Group					
	< 21 years of age		21-25 years of age		26-50 years of age	
	Residential Night n=86	RBT Night n=80	Residential Night n=122	RBT Night n=154	Residential Night n=159	RBT Night n=229
Characteristics of Driving Exposure						
Drive own car	49.8	68.8	57.3	74.0	53.8	78.9
Just go for a drive regularly*	15.4	2.5	11.7	3.3	9.9	4.4
Would consult street directory or follow direction most of the time/always	4.4	10.3	10.7	14.3	10.2	11.0
Carry 2 or more passengers**	37.4	10.3	24.8	2.8	32.1	14.5
Usually carry male passengers (male drivers)**	25.6	21.1	49.0	2.9	50.0	16.1
Usually carry male passengers (female drivers)**	34.3	20.0	24.0	16.7	15.1	11.7
Passengers are usually friends**	32.6	30.8	21.0	13.9	6.4	12.0
Loud volume level on radio/cassette	35.2	15.0	23.4	11.6	8.4	2.6

* compared with 'No' responses to "Do you have a specific destination?" on RBT survey

** compared to passenger data for the single trip being undertaken at time of RBT survey

TABLE 3.61

**MEAN RATINGS OF RESIDENTIAL AND RBT SAMPLES
BY QUESTION AND AGE GROUP**

	Mean Ratings					
	< 21 years of age		21-25 years of age		26-50 years of age	
	Residential Night Drivers n=86	RBT Night Drivers n=80	Residential Night Drivers n=122	RBT Night Drivers n=154	Residential Night Drivers n=159	RBT Night Drivers n=229
Driving habits (1 = never; 10 = always)						
How often do you...						
wear you seatbelt while driving	9.6	9.8	9.8	9.7	9.8	9.7
drive more than 10km/hr above the speed limit in built up areas	4.2	4.4	4.5	4.6	3.6	4.0
stop at stop signs	9.5	8.7	9.2	8.7	9.7	9.5

	Mean Rating:					
	<21 years of age		21-25 years of age		26-50 years of age	
	Residential Night Drivers n=86	RBT Night Drivers n=80	Residential Night Drivers n=122	RBT Night Drivers n=154	Residential Night Drivers n=159	RBT Night Drivers n=229
feel tired when driving at night-time	3.4	3.9	4.0	3.4	3.4	3.4
drive more than 10km/hr above the speed limit on open roads	5.3	5.6	5.4	5.5	4.6	4.5
get angry at the actions of other drivers	6.2	6.6	5.9	6.1	4.9	5.5
drive more than 10km/hr above the speed limit during the day	3.9	4.6	4.4	4.7	3.3	3.7
drive after having a few drinks	1.5	1.5	1.8	1.9	2.0	2.1
enjoy driving	8.0	8.4	7.5	7.5	7.9	8.1
prefer not to wear a seatbelt	2.1	1.7	1.7	1.8	2.0	2.2
drive more than 10km/hr above the speed limit at night-time	4.0	4.2	4.7	4.7	3.3	3.3
feel tired when driving during the day	2.3	2.2	2.4	2.3	2.4	2.6
enjoy driving faster than other traffic	3.6	3.3	3.8	3.3	2.8	2.6
(1 = strongly agree; 10 = strongly disagree)						
I think that it is easier to drive at night than during the day	5.7	4.7	5.5	5.8	6.3	6.9
I prefer to drive rather than be a passenger in a car	3.5	3.1	3.6	3.3	3.9	2.8
I prefer to use public transport rather than drive	8.8	8.9	8.5	8.8	7.9	8.5
Personality scales						
(1 = strongly agree; 10 = strongly disagree)						
I like my life to be planned and organised	4.2	4.4	4.0	4.3	4.2	3.8
Nothing much worries me	4.9	5.2	4.6	5.3	4.9	5.4
When I'm with friends, I have a better time if I drink alcohol	6.5	7.2	7.3	7.6	7.3	8.3
On the whole, I'm satisfied with myself	3.6	3.2	2.8	3.8	3.2	3.1

	Mean Ratings					
	<21 years of age		21-25 years of age		26-50 years of age	
	Residential Night Drivers n = 86	RBT Night Drivers n = 80	Residential Night Drivers n = 122	RBT Night Drivers n = 154	Residential Night Drivers n = 159	RBT Night Drivers n = 229
I get annoyed when I'm not allowed to do what I want to	4.1	4.3	4.2	5.1	5.0	5.5
I don't like taking chances	4.8	5.7	5.0	5.4	4.9	4.5
I like to do things on the spur of the moment	4.0	4.1	4.3	4.7	4.4	4.7
It's OK to occasionally get very drunk	5.3	5.7	6.2	6.8	7.5	7.8
I prefer to do things my own way	3.0	3.5	3.1	3.6	3.2	3.8
I'm satisfied with my life in general	3.0	2.7	2.6	3.2	2.8	2.8
I think people who drink too much are stupid	3.9	3.0	3.5	3.8	2.9	3.2
I don't do anything without first considering the consequences	4.7	4.5	3.7	4.3	3.6	3.5
I like taking advice from other people	5.3	5.2	4.8	5.4	4.6	4.9

It can be seen from Table 3.60 that half of the variables showed very similar results for the Residential and RBT night groups (a difference generally of no more than 5%). Some large differences did appear, however, in the passenger data. As already stated, this may be due to the fact that a single trip (RBT survey) was being compared with a week's worth of trips (Residential survey). There may also have been a sampling bias in that drivers with many passengers in their car were less likely to stop in order to fill out a survey than those drivers travelling alone.

One pattern to emerge from the data was the consistent direction of the difference between the Residential and RBT groups within an age group. That is, for almost all variables, the proportion of Residential night drivers responding in a certain way was consistently higher (or lower) than the proportion of RBT night drivers in each age group.

Average responses on the rating scales, presented in Table 3.2, are very similar between the night groups. This was despite a handful of the questions being worded slightly differently, with the speeding scales having 'more than 10km/hr' deleted to read 'drive above the speed limit...' and 'driving faster than other traffic' was included as 'drive as fast as you can'. Again, the majority of variables displayed a similar direction of difference between the night groups across age ranges.

In summary, the RBT data was shown to be similar enough to the Residential data, given different sampling and environmental characteristics of the two surveys, to provide a moderate level of support for the Residential exposure group disaggregations.

4.0 DISCUSSION OF RESULTS

4.1 BACKGROUND

It is known that the amount of nighttime driving exposure cannot explain the overinvolvement of young drivers in nighttime crashes. It also appears that a global restriction on (high risk) nighttime exposure is unlikely to be introduced for a range of reasons.

To assist the possible development of more targeted young driver nighttime crash countermeasures (which could involve risk reduction strategies and/or exposure reduction strategies), the aim of this project was to establish whether there are *appreciable* differences in the qualitative aspects of driving exposure between young drivers classified as nighttime drivers (on the basis of self-reported driving exposure patterns) and other young drivers and whether these differences are more marked than for older drivers.

It should be noted that many of the variables in the qualitative exposure domain do not have a known, or clear, empirical relationship with crash risk. Thus, the results of this survey should be seen as describing the driving of a designated "nighttime driver" young driver sub-group, relative to the driving of a designated "daytime driver" young driver sub-group (together with "high exposure" and "low exposure" young driver sub-groups). It is believed that this is the first time such within-group (and between (age) groups) comparisons have been made and therefore results have been presented in great detail.

While any particular result in the results section of this report may be useful at a specific level, there is a more general policy outcome from this study, namely an assessment of the potential for, and type of, targeted young driver crash countermeasure. Such considerations introduce the concepts of efficiency and equity (rather than just effectiveness) into the countermeasure development process and potentially increase the range of policy options designed to reduce the overinvolvement of young drivers in crashes.

4.2 REVIEW OF STUDY OUTCOMES

A review of the aims and results of this study indicates that the following general outcomes provide a good summary:

- Disaggregation of Group Exposure

The study demonstrated that it is possible to disaggregate the reported driving exposure of the (young) driver population into mutually exclusive exposure sub-groups. From the disaggregation process five exposure sub-groups were identified, with these five sub-groups representing some 93% of the total sample. These sub-groups were:

- Daytime (D) Group, - those who drove *more* than the daytime average and *less* than the nighttime average.

- Nighttime (N,d>n) Group 1, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *more* of their driving during the day.
- Nighttime (N, n>d) Group 2, - those who drove *less* than the daytime average and *more* than the nighttime average, but did *less* of their driving during the day.
- High Exposure (HE) Group, - those who drove *more* than the daytime average and *more* than the nighttime average.
- Low Exposure (LE) Group, - those who drove *less* than the daytime average and *less* than the nighttime average.

The results for these day/night sub-groups demonstrated reasonable correspondence between the residential and RBT samples, a finding which could be interpreted as partial validation of the original analytical disaggregation.

• Differential Impact of Countermeasures

The study has provided an indicative basis for the estimation of the range of differential impacts that exposure reduction countermeasures applied to the entire young driver population would have. That is, such potentially restrictive countermeasures will not impact equally on every member of the population and it is important to keep this in mind when establishing the "costs" of any particular restriction. The current study provides some data for determination of this issue.

Further, it raises for discussion the general issue of (within-group) targeted countermeasures for the young driver population. It is reasonable to suggest that crash risk varies within the young driver population (i.e. not every young driver operates at the average level of risk of crash involvement) and that the targetting of crash countermeasures within the young driver population may be a desirable policy option, especially if it leads to an increase in the number of available policy options.

Such a move would incorporate the concepts of efficiency and equity into the countermeasure development process, in addition to the traditional criterion of effectiveness.

• Qualitative Exposure Differences

Results of this study have shown that the driving of a designated "nighttime" young driver sub-group appears to be qualitatively different in a range of ways. Compared to their proportion of the young driver age group, this sub-group appear to be:

- more likely to be full-time students
- less likely to have an annual income over \$21,000
- less likely to be married
- less likely to have children
- less likely to speak languages other than English at home
- less likely to be paying a mortgage

- more likely to wear glasses or contact lenses
- more likely to drive cars more than 10 years old, display personalised number plates and drive a modified car
- more likely to drive their own car
- more likely to be under pressure to get to their destination
- more likely to be carrying passengers who are friends
- more likely to have received one or more warnings in the last 12 months.

Compared to the driving characteristics of their "daytime driver" peers, the designated "nighttime driver" young driver sub-group appear to reflect many of the same differences. The differences in reported driving habits, driving assessments and "personality" scales between these sub-groups were generally small.

- **Contribution of Qualitative Exposure to Nighttime Crash Risk**

It is reasonable to conclude that, given the type and range of differences found, qualitative exposure factors make a contribution to the increased risk of crash involvement at night. The magnitude of this contribution cannot be reliably estimated on the basis of the data presented (indeed, it may be that this contribution is better conceived as the residual once the effect of (the increased difficulty of) driving performance at night is removed as the latter may be more directly ascertained).

Nevertheless, it should be emphasised that to validly address this component of the young driver nighttime driving problem requires either the development of effective motivational countermeasures or the implementation of exposure reduction countermeasures.

5.0 CONCLUSION

There is evidence that the quantity of nighttime driving cannot explain the overinvolvement of young drivers in nighttime crashes as, when the amount of driving at night is controlled for, nighttime driving remains a particularly risky type of driving for young drivers. In these circumstances, and given that global restrictions on the nighttime driving of young drivers are unlikely to be implemented for a variety of reasons, this study has explored the qualitative aspects of driving exposure as a potential explanatory factor for the riskiness of nighttime driving.

On first principles, nighttime driving is an inherently more risky activity due to impoverished visual conditions. It seems reasonable to also suggest that qualitative exposure factors may also account for some of the differences in crash risk. For example, there may be a different 'type' of young driver on the roads at night compared to those who are 'daytime' drivers, reflected by the fact that night-time drivers may do more recreational driving, with a greater number of passengers.

To this end, two surveys were conducted, one a nationwide, residential survey while a more geographically limited survey during RBT operations was also conducted. A range of qualitative differences in the driving exposure of designated "nighttime" and "daytime" young driver sub-groups were noted in an extensive presentation of results. Results of this study have shown that the driving of a designated "nighttime" young driver sub-group appears to be qualitatively different in a range of ways. Compared to their proportion of the young driver age group, this sub-group appear:

- more likely to be full-time students
- less likely to have an annual income over \$21,000
- less likely to be married
- less likely to have children
- less likely to speak languages other than English at home
- less likely to be paying a mortgage
- more likely to wear glasses or contact lenses
- more likely to drive cars more than 10 years old, display personalised number plates and drive a modified car
- more likely to drive their own car
- more likely to be under pressure to get to their destination
- more likely to be carrying passengers who are friends
- more likely to have received one or more warnings in the last 12 months.

In addition to specific results, the study also raised some fundamental policy issues on the potential for within group targetting of young driver crash countermeasures. While the qualitative exposure differences are generally not sufficient (in their own right) to justify differential countermeasure attention, it is possible to partition the young driver population into independent groups using a wide range of criteria, of which driving exposure characteristics is but one.

Given this, and an "acceptable" link between these criteria and crash risk, is there scope to apply different types of countermeasures to sub-groups or differential compliance requirements with the same countermeasure. This would introduce the concepts of countermeasure efficiency and equity into the young driver countermeasure design and evaluation process, in addition to the traditional criterion of effectiveness.

REFERENCE

Drummond, A.E. & Yeo, E-Y (1992), The Risk of Driver Crash Involvement as a Function of Driver Age, Report No. 49, Monash University Accident Research Centre, Melbourne.

APPENDIX A

START TIME	FINISH TIME	TOTAL INT MIN

PROJECT NAME: 11-5371
PROJECT: DRIVING HABITS

od morning/afternoon/evening, I'm ... (FULL NAME) from the market research company. We are conducting a national survey on driving habits. May I please ask to the youngest licensed car driver in your home who is under 51 years of age and has driven a car in the past month.
CHECK AGE QUOTAS: UNDER 21 -- 1 21-25 -- 2 26-50 -- 3 / MALE --- 1 FEMALE --- 2

- a. Firstly a few questions about the car you (DK = 0000) YEARS usually drive. How old is it?
- b. How many seat-belts does it have? # BELTS
- c. Does it have a personalised number plate? YES ----- 1
NO ----- 2
- d. What type of insurance cover does this car have? COMPREHENSIVE ----- 1
3RD PARTY ----- 2
3RD PARTY PROPERTY ----- 3
OTHER (SPECIFY) ----- 4
- e. How do you get your car serviced (oil/grease)? (NOT MAJOR REPAIRS) SELF ----- 1
FRIEND/RELATIVE ----- 2
GARAGE/SERVICE STATION/WORKSHOP --- 3
DOESN'T GET SERVICED ----- 4
- f. How often does it usually get washed? WEEKLY ----- 1 -- 1
FORTNIGHTLY ----- 2 -- 2
MONTHLY ----- 3 -- 3
EVERY 2 TO 3 MONTHS ----- 4 -- 4
LESS OFTEN ----- 5 -- 5
NEVER ----- 6 -- 6
RECORD IN COLUMN Q1f.
- g. And how often does it usually get waxed or polished? WEEKLY ----- 1 -- 1
FORTNIGHTLY ----- 2 -- 2
MONTHLY ----- 3 -- 3
EVERY 2 TO 3 MONTHS ----- 4 -- 4
LESS OFTEN ----- 5 -- 5
NEVER ----- 6 -- 6
RECORD IN COLUMN Q1g.
- h. Has the car been modified in any way? NO ----- 1
YES - BODY ----- 2
YES - MECHANICAL ----- 3
YES - WHEELS/TYRES ----- 4
- i. Did you have a car before you had your driver's licence? YES ----- 1
NO ----- 2

2a. And now some questions about your driving in the past 7 days. [SHOW CARD A] We would like to know how many hours, approximately, you spent driving on each day during the day and during the night after 7 pm. Let's start with yesterday - how many hours did you drive yesterday day time between 6 am and 7 pm? - how DO NOT INCLUDE TODAY - WORK BACK FROM YESTERDAY

	MON	TUE	WED	THUR	FRI	SAT	SUN	TOTAL
DAY 6 AM - 7 PM								
NIGHT 7 PM - 6 AM								

- b. How many hours of your driving last week during daytime/night-time is work related. DAY HRS/WEEK ----- HR
NIGHT HRS/WEEK ----- HR
INCLUDE TIME COMMUTING TO/FROM WORK AND ANY DRIVING AS PART OF JOB
- c. During the time you spent driving in the past seven days, approximately how many kilometers in total did you travel DAY HRS/WEEK ----- KM
NIGHT HRS/WEEK ----- KM
- d. And how many of the kilometers you travelled last week during daytime/night-time were work related? DAY HRS/WEEK ----- KM
NIGHT HRS/WEEK ----- KM
INCLUDE DISTANCE COMMUTING TO/FROM WORK ANY DRIVING AS PART OF JOB
- e. How long ago did you last drive a long trip of more than 200 km? LAST WEEK ----- 1
LAST MONTH ----- 2
LAST YEAR ----- 3
OVER 1 YEAR ----- 4
NEVER ----- 5
- f. IF CODE 1-4: Was this trip work related? YES ----- 1
NO ----- 2

INTERVIEWER CHECK Q2a./Q2b. AND CIRCLE BELOW FOR TYPE OF DRIVING UNDERTAKEN PAST WEEK. ASK Q3a. TO Q3g. FOR EACH TYPE CIRCLED.

SINGLE PERSONS ONLY

The next few questions are about specific aspects of the driving you do. Firstly, thinking about the driving you usually do during [DAYTIME/NIGHT-TIME] for [NON-WORK/WORK TRIPS] ...

DAY 6 AM - 7 PM		NIGHT 7 PM - 6	
NON-WORK TRIPS	WORK TRIPS	NON-WORK TRIPS	W TR
1	2	3	

Q3a. Whose car do you drive?	OWN -----	1	-----	1	-----	1	-----
	FAMILY -----	2	-----	2	-----	2	-----
	COMPANY -----	3	-----	3	-----	3	-----
	FRIENDS -----	4	-----	4	-----	4	-----
	OTHER -----	5	-----	5	-----	5	-----
b. Do you ever just go for a drive? [READ OUT]	REGULARLY -----	1	-----	1	-----	1	-----
	SOMETIMES -----	2	-----	2	-----	2	-----
	OR NEVER -----	3	-----	3	-----	3	-----
c. For those [DAYTIME/NIGHT- TIME] [NON-WORK/WORK] trips, how familiar are you with the routes you take. Would you consult the street directory or follow directions given to you? [READ]	ALWAYS -----	1	-----	1	-----	1	-----
	MOST OF TIME -----	2	-----	2	-----	2	-----
	OCCASIONALLY -----	3	-----	3	-----	3	-----
	NEVER -----	4	-----	4	-----	4	-----
d. On these trips, are you under time pressure to get to your destination? [READ]	ALWAYS -----	1	-----	1	-----	1	-----
	SOMETIMES -----	2	-----	2	-----	2	-----
	NEVER -----	3	-----	3	-----	3	-----
e. On these [DAYTIME/NIGHT- TIME] NON-WORK/WORK trips, how many passengers do you usually carry?	NONE -----	1	-----	1	-----	1	-----
	ONE -----	2	-----	2	-----	2	-----
	TWO+ -----	3	-----	3	-----	3	-----
f. IF 1 OR MORE PASSENGERS: Are they usually ... [READ]	FEMALE -----	1	-----	1	-----	1	-----
	MALE -----	2	-----	2	-----	2	-----
	BOTH -----	3	-----	3	-----	3	-----
g. IF 1 OR MORE PASSENGERS: What is their relation- ship to you?	PARTNER/SPOUSE -----	1	-----	1	-----	1	-----
	FAMILY -----	2	-----	2	-----	2	-----
	FRIENDS -----	3	-----	3	-----	3	-----
	WORK COLLEAGUES -----	4	-----	4	-----	4	-----
	OTHER -----	5	-----	5	-----	5	-----

NOW ASK Q3a. - Q3g. FOR NEXT TRAVEL TYPE CIRCLED

would like to know how often you do various things while driving [SHOW CARD B]. To help you, here is a card with a scale running from NEVER to ALWAYS. As I read out each item, please indicate how often you do it by pointing to a position on the scale.

VIEWER: GIVE BREAKFAST EXAMPLE.

Firstly, how often do you ... [RECORD CLOSEST NUMBER]

- | | | |
|----|--|----------------------|
| 01 | WEAR YOUR SEATBELT WHILE DRIVING ----- | <input type="text"/> |
| 02 | DRIVE MORE THAN 10 KM/HR ABOVE THE SPEED LIMIT IN BUILT-UP AREAS --- | <input type="text"/> |
| 03 | STOP AT STOP SIGNS ----- | <input type="text"/> |
| 04 | FEEL TIRED WHEN DRIVING AT NIGHT-TIME ----- | <input type="text"/> |
| 05 | DRIVE MORE THAN 10 KM/HR ABOVE THE SPEED LIMITS ON OPEN ROADS ----- | <input type="text"/> |
| 06 | GET ANGRY AT THE ACTIONS OF OTHER DRIVERS ----- | <input type="text"/> |
| 07 | DRIVE MORE THAN 10 KM/HR ABOVE THE SPEED LIMIT DURING DAYTIME ----- | <input type="text"/> |
| 08 | DRIVE AFTER HAVING A FEW DRINKS ----- | <input type="text"/> |
| 09 | ENJOY DRIVING ----- | <input type="text"/> |
| 10 | PREFER <u>NOT</u> TO WEAR A SEATBELT ----- | <input type="text"/> |
| 11 | DRIVE MORE THAN 10 KM/HR ABOVE THE SPEED LIMIT AT NIGHT-TIME ----- | <input type="text"/> |
| 12 | FEEL TIRED WHEN DRIVING DURING THE DAY ----- | <input type="text"/> |
| 13 | ENJOY DRIVING FASTER THAN OTHER TRAFFIC ----- | <input type="text"/> |

[SHOW CARD C] Here is a similar scale running from STRONGLY AGREE to STRONGLY DISAGREE. As I read out a statement, please indicate how much you AGREE or DISAGREE with it by pointing to a position on the scale.

- | | | |
|----|---|----------------------|
| 1. | I THINK THAT IT IS EASIER TO DRIVE AT NIGHT THAN DURING THE DAY ----- | <input type="text"/> |
| 2. | I PREFER TO DRIVE RATHER THAN BE A PASSENGER IN A CAR ----- | <input type="text"/> |
| 3. | I PREFER TO USE PUBLIC TRANSPORT RATHER THAN DRIVE ----- | <input type="text"/> |

In the past 12 months, how many times have you been

- | | | |
|----|---|----------------------|
| 1. | ISSUED WITH A PARKING INFRINGEMENT TICKET ----- | <input type="text"/> |
| 2. | ISSUED WITH A TRAFFIC INFRINGEMENT TICKET OR CHARGED BY POLICE
FOR A TRAFFIC OFFENCE ----- | <input type="text"/> |
| 3. | WARNED BY A TRAFFIC OR POLICE OFFICER ----- | <input type="text"/> |

When you have your radio/cassette on while driving, what volume level would you usually turn it to?

- | | |
|---------------------|---|
| SOFT ----- | 1 |
| MODERATE ----- | 2 |
| LOUD ----- | 3 |
| DON'T TURN ON ----- | 4 |

[SHOW CARD D] This card contains four scales related to people's driving style. For each scale, please rate your driving style by pointing to a position on the scale.

- | | |
|----------------|----------------------|
| CAUTIOUS ----- | <input type="text"/> |
| PATIENT ----- | <input type="text"/> |
| FAST ----- | <input type="text"/> |
| NERVOUS ----- | <input type="text"/> |

d. [SHOW CARD E] Please use this scale to rate the degree of danger you believe is involved in driving in the following conditions, during the day between 6 am and 7 pm.

CITY DRIVING	-----	<input type="checkbox"/>
COUNTRY DRIVING	-----	<input type="checkbox"/>
CARS FOLLOWING TOO CLOSE	-----	<input type="checkbox"/>
RAIN	-----	<input type="checkbox"/>

e. Using the same scale, please rate the degree of danger you believe is involved in driving in the following conditions, during the night between 7 pm and 6 am.

CITY DRIVING	-----	<input type="checkbox"/>
COUNTRY DRIVING	-----	<input type="checkbox"/>
CARS FOLLOWING TOO CLOSE	-----	<input type="checkbox"/>
RAIN	-----	<input type="checkbox"/>

f. [SHOW CARD F] Do you support or oppose the following as methods of improving safety on Australian Roads? Please point to a position on the scale.

RANDOM BREATH TESTING	-----	<input type="checkbox"/>
SPEED RADAR/SPEED CAMERAS	-----	<input type="checkbox"/>

[SHOW CARD G FOR Q6g. TO Q6l.]

g. Using this scale, how would you rate your driving skills compared to other drivers of your age and sex.

h. IF 25 YRS OR UNDER: How would you rate your driving skills compared to other drivers of the same sex, but older than you (i.e. over 30 years of age) NOW SKIP TO Q6j.

i. IF OVER 25 YRS: How would you rate your driving skills compared to other drivers of the same sex, but younger than you (i.e. under 26 years of age)?

j. How would you rate your risk-taking level compared to other drivers of your age and sex?

k. IF 25 YRS OR UNDER: How would you rate your risk-taking level compared to other drivers of the same sex but older than you (i.e. over 30 years of age) NOW SKIP TO Q7.

l. IF OVER 25 YRS: How would you rate your risk-taking level compared to other drivers of the same sex but younger than you (i.e. under 26 years of age)

Q7. This card [SHOW CARD H] contains factors that other people say are important for safe driving. Would you please read through the list of factors [PAUSE] ... which one do you believe is most important. REPEAT FOR SECOND AND THIRD MOST IMPORTANT

MOST IMPORTANT	-----	<input type="checkbox"/>
SECOND MOST IMPORTANT	-----	<input type="checkbox"/>
THIRD MOST IMPORTANT	-----	<input type="checkbox"/>

ally, a few questions about yourself ...

What is your age? [] (REFUSED = 99)

SEX: MALE ----- 1 FEMALE ----- 2

	YES	NO
Are you married/in a de facto relationship -----	1	2
Do you have children under 12 years of age?-----	1	2
Do you speak any language other than English at home? -----	1	2
Do you pay rent/board? -----	1	2
Do you pay a mortgage? -----	1	2
Do you have regular access to a car? -----	1	2
Do you participate in organised sports? -----	1	2
Do you wear glasses or contact lenses when driving? -----	1	2
Do you smoke? -----	1	2

What is the highest level of education you have achieved?	SECONDARY -----	1
	UNIVERSITY/TERTIARY -----	2
	TRADE/TECHNICAL COLLEGE -----	3
	OTHER -----	4

What is your main occupation:

How many years have you been a licensed driver? [] YEARS (DK = 99)

Would your annual income be over or under \$21,000? IF OVER: Would it be over or under \$41,000?	UNDER \$21,000 -----	1
	\$21,000 - \$40,000 -----	2
	\$41,000 -----	3
	REFUSED -----	4

[SHOW CARD C] Please indicate how much you AGREE or DISAGREE with the statements I will read out by pointing to a position on the scale.

01 I LIKE MY LIFE TO BE PLANNED AND ORGANISED -----	[]
02 NOTHING MUCH WORRIES ME -----	[]
03 WHEN I'M WITH FRIENDS, I HAVE A BETTER TIME IF I DRINK ALCOHOL -----	[]
04 ON THE WHOLE, I'M SATISFIED WITH MYSELF -----	[]
05 I GET ANNOYED WHEN I'M NOT ALLOWED TO DO WHAT I WANT TO DO -----	[]
06 I DON'T LIKE TAKING CHANCES -----	[]
07 I LIKE TO DO THINGS ON THE SPUR OF THE MOMENT -----	[]
08 IT'S O.K. TO OCCASIONALLY GET VERY DRUNK -----	[]
09 I PREFER TO DO THINGS MY OWN WAY -----	[]
10 I'M SATISFIED WITH MY LIFE IN GENERAL -----	[]
11 I THINK PEOPLE WHO DRINK TOO MUCH ARE STUPID -----	[]
12 I DON'T DO ANYTHING WITHOUT FIRST CONSIDERING THE CONSEQUENCES -----	[]
13 I LIKE TAKING ADVICE FROM OTHER PEOPLE -----	[]

ONEY ----- 01	MELBOURNE -- 03	BRISBANE --- 05	PERTH ----- 07	ADELAIDE --- 09
HER NSW -- 02	OTHER VIC ---04	OTHER QLD -- 06	OTHER WA - 08	OTHER SA --- 10
				TAS ----- 11

SPONDENT NAME: _____

DRESS: _____

LEPHONE NO.: _____ (STD) _____ POSTCODE: [] [] [] []

TERVIEWER NAME: _____ PAYROLL: [] [] [] []

GNATURE: _____ DATE: _____

ECKED BY: _____ VALIDATED BY: _____

APPENDIX B

EXAMPLES OF OCCUPATION GROUPS**Unskilled Worker:**

Labourer, domestic help, waiter, postman, cleaner, tram conductor, forestry worker, farm worker, council worker, freight handler, storeman, packer etc

Semi-skilled tradesperson or worker

Fisherman, apprentice, construction worker, process worker, plumber's mate, driver (road or rail), engine operator, production process worker (paper, rubber, plastic, sugar, chemical, food, drink) etc

Skilled tradesperson

Tailor, weaver, dyer, toolmaker, electrician, carpenter, plumber, bricklayer, printer, cook, hairdresser, barber, dry cleaner, butcher, farm foreman, technician, police officer, fire officer, protective services, armed forces etc

Lower White Collar

Manager of small business (less than 5 employees), clerk, secretary, typist, key punch operator, computer programmer, school teacher, nurse, salesman, shopkeeper, shop assistant, bookkeeper, draftsman, 3rd and 4th division public servant etc

Middle level White Collar

Owner or manager of medium sized business (5 to 50 employees), department manager, bank manager, professional engineer, scientist, doctor, lawyer, accountant, architect, headmaster, hospital matron, 2nd division public servant, town clerk etc

Upper White Collar

Director or manager of large business (50 or more employees), senior manager in large corporation, senior public servant, senior professional or technical executive (eg. law, medicine, engineering, architecture, academic) etc

APPENDIX C



The following table displays the complete range of responses to the question: "Has your car been modified in any way?"

	Driver age: < 21 years (n=741)											
	D	N (d>n)		N (n=d)		HE		LE (d)		Total		
Wheels	7	0.9%	3	0.7%	3	0.0%	7	4.9%	8	2.9%	28	4.3%
Mechanical	2	1.1%	2	0.9%	3	0.1%	3	2.2%	8	2.9%	15	2.9%
Mechanical & wheels	3	2.0%	0	1.2%	1	2.4%	10	8.9%	4	1.9%	18	2.9%
Body	3	2.9%	0	0.0%	1	2.4%	5	3.4%	4	1.3%	13	2.0%
Body & wheels	3	2.2%	1	2.0%	1	2.4%	3	2.2%	4	1.9%	12	1.9%
Body, mechanical & wheels	4	3.1%	1	3.7%	0	0.0%	7	4.9%	1	0.4%	13	2.0%
None	118	84.2%	25	79.0%	41	91.7%	107	78.0%	251	89.5%	542	84.2%
Total	140	100%	32	100%	50	100%	142	100%	280	100%	644	100%

	Driver age: 21-25 years (n=757)											
	D	N (d>n)		N (n=d)		HE		LE (d)		Total		
Wheels	4	3.9%	3	3.9%	0	0.0%	6	3.9%	15	4.7%	28	4.0%
Mechanical	4	3.2%	3	3.7%	4	0.9%	9	8.0%	13	4.1%	33	4.7%
Mechanical & wheels	2	1.7%	1	0.9%	2	0.8%	4	2.9%	3	0.9%	12	1.7%
Body	2	2.1%	1	0.9%	0	0.0%	3	2.1%	9	3.0%	15	2.1%
Body & wheels	4	3.2%	1	1.6%	1	2.9%	2	1.6%	1	0.4%	9	1.3%
Body & mechanical	0	0.0%	0	0.0%	0	0.0%	1	0.9%	1	0.2%	2	0.3%
Body, mechanical & wheels	1	1.1%	3	3.9%	1	2.9%	5	5.3%	8	2.4%	21	3.0%
None	96	85.0%	67	85.2%	33	79.9%	119	77.9%	265	84.3%	590	82.9%
Total	113	100%	79	100%	41	100%	152	100%	315	100%	750	100%

	Driver age: 26-50 years (n=1510)											
	D	N (d>n)		N (n=d)		HE		LE (d)		Total		
Wheels	8	3.9%	2	1.9%	1	1.9%	7	2.7%	30	3.9%	48	3.3%
Mechanical	8	2.9%	3	2.9%	1	3.2%	11	4.7%	13	1.7%	36	2.9%
Mechanical & wheels	1	0.2%	0	0.0%	1	1.9%	2	0.9%	3	0.9%	7	0.5%
Body	5	1.7%	1	1.0%	1	3.3%	4	1.8%	13	1.8%	24	1.7%
Body & wheels	2	0.7%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	3	0.2%
Body & mechanical	1	0.4%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	2	0.1%
Body, mechanical & wheels	2	0.7%	1	0.9%	0	0.0%	3	1.3%	1	0.2%	7	0.5%
None	253	90.8%	112	93.9%	33	88.9%	213	89.7%	706	91.9%	1317	91.1%
Missing	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%	1	0.1%
Total	260	100%	119	100%	37	100%	243	100%	789	100%	1445	100%

APPENDIX D

The following table displays the full range of responses to the question: "How are your passengers related to you" for the four types of driving.

a) Non-work trips during the day

	Driver age: <21 years (n=741)											
	D	N (d>n)		N (n>d)		HE	LE (d)		Total			
Partner	8	5.4%	0	0.0%	1	2.6%	9	6.1%	15	4.8%	31	4.8%
Family	19	13.8%	4	13.3%	4	7.0%	11	7.8%	69	24.8%	107	16.8%
Friends	59	42.0%	19	88.0%	28	95.1%	66	80.8%	115	40.8%	307	47.4%
Work colleagues	1	0.8%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	2	0.3%
Other	0	0.0%	0	0.0%	1	1.5%	0	0.0%	2	0.7%	3	0.6%
Partner, family	1	0.8%	0	0.0%	0	0.0%	0	0.0%	3	1.1%	4	0.6%
Partner, friends	1	0.8%	0	0.0%	1	2.4%	1	0.8%	4	1.3%	7	1.1%
Family, friends	13	8.0%	0	0.0%	2	4.8%	12	8.6%	16	6.6%	43	6.6%
Friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.2%
Partner, family, friends	1	0.8%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%
Family, friends, other	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	1	0.2%
Not applicable	38	26.8%	9	27.7%	14	28.8%	23	16.8%	57	20.3%	141	21.8%
Total	141	100%	32	100%	51	100%	142	100%	282	100%	648	100%

	Driver age: 21-25 years (n=757)											
	D	N (d>n)		N (n>d)		HE	LE (d)		Total			
Partner	21	18.4%	9	11.2%	3	7.3%	18	11.8%	34	10.7%	85	12.2%
Family	22	18.8%	13	17.2%	8	19.8%	20	13.0%	74	23.8%	117	18.8%
Friends	26	23.2%	29	38.8%	14	33.2%	57	37.3%	91	28.0%	217	31.0%
Work colleagues	1	1.1%	0	0.0%	0	0.0%	2	1.8%	1	0.2%	4	0.6%
Other	0	0.0%	0	0.0%	1	2.9%	0	0.0%	1	0.4%	2	0.3%
Partner, family	1	0.8%	0	0.0%	0	0.0%	2	1.8%	7	2.1%	10	1.4%
Partner, friends	1	1.1%	1	1.5%	0	0.0%	2	1.8%	0	0.0%	4	0.6%
Family, friends	6	6.3%	2	3.1%	0	0.0%	11	7.1%	7	2.4%	26	3.7%
Friends, work colleagues	1	1.1%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Partner, friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	2	1.8%	0	0.0%	2	0.3%
Family, friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	1	0.4%	0	0.0%	1	0.1%
Not applicable	33	29.9%	24	30.2%	16	37.1%	37	24.8%	100	31.7%	210	30.2%
Total	112	100%	78	100%	42	100%	152	100%	315	100%	699	100%

	Driver age: 26-50 years (n=1510)											
	D	N (d>n)		N (n>d)		HE	LE (d)		Total			
Partner	22	8.0%	15	12.8%	2	5.1%	28	11.6%	77	32.1%	144	10.0%
Family	150	63.8%	60	41.8%	8	22.8%	92	38.2%	395	61.4%	695	48.2%
Friends	5	2.0%	11	9.1%	7	17.7%	22	8.2%	35	4.8%	60	5.5%
Work colleagues	1	0.2%	0	0.0%	0	0.0%	2	1.0%	0	0.0%	3	0.2%
Other	1	0.4%	1	1.0%	1	1.8%	1	0.9%	2	0.3%	6	0.4%
Partner, family	16	6.6%	4	3.1%	2	4.4%	12	5.0%	48	6.2%	82	6.7%
Partner, friends	0	0.0%	0	0.0%	1	3.2%	1	0.4%	0	0.0%	2	0.1%
Partner, other	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.3%	2	0.1%
Family, friends	4	1.3%	2	2.0%	0	0.0%	6	2.5%	19	2.9%	31	2.1%
Family, work colleagues	1	0.4%	0	0.0%	0	0.0%	1	0.9%	0	0.0%	2	0.1%
Family, other	0	0.0%	1	0.8%	0	0.0%	1	0.9%	0	0.0%	2	0.1%
Friends, work colleagues	1	0.4%	0	0.0%	0	0.0%	0	0.0%	2	0.3%	3	0.2%
Partner, family, friends	0	0.0%	0	0.0%	0	1.1%	4	1.5%	5	0.7%	9	0.6%
Partner, friends, other	0	0.0%	0	0.0%	0	0.0%	1	0.5%	0	0.0%	1	0.1%
Not applicable	78	27.8%	35	29.8%	16	43.8%	68	28.3%	183	23.7%	380	26.4%
Total	279	100%	119	100%	37	100%	239	100%	768	100%	1442	100%

b) Work trips during the day

	D		N (d+n)		N (n+d)		HE		LE (d)		Total	
	N	%	N	%	N	%	N	%	N	%		
Partner	2	1.7%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	3	0.9%
Family	7	5.1%	2	8.7%	0	0.0%	2	1.7%	8	2.8%	19	3.0%
Friends	8	4.3%	0	1.2%	1	2.4%	8	6.8%	6	3.1%	21	3.3%
Work colleagues	14	9.8%	1	3.7%	1	2.4%	9	6.8%	9	3.2%	34	5.3%
Other	0	0.3%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	1	0.2%
Partner, friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	1	0.2%
Not applicable	111	78.0%	29	89.1%	48	95.1%	118	83.3%	257	81.7%	563	87.7%
Total	140	100%	32	100%	50	100%	140	100%	280	100%	642	100%

	D		N (d+n)		N (n+d)		HE		LE (d)		Total	
	N	%	N	%	N	%	N	%	N	%		
Partner	1	1.1%	1	1.8%	0	0.0%	4	2.9%	3	1.0%	9	1.3%
Family	6	5.2%	4	6.4%	0	0.0%	3	2.0%	11	3.4%	24	3.4%
Friends	5	4.8%	3	4.0%	2	6.7%	8	3.8%	5	1.7%	21	3.0%
Work colleagues	16	13.4%	5	7.0%	2	6.8%	20	13.0%	11	3.8%	55	7.8%
Other	2	3.1%	0	0.0%	0	0.0%	2	1.8%	1	0.4%	5	0.7%
Partner, family	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	1	0.1%
Family, friends	0	0.0%	0	0.0%	0	0.0%	1	0.8%	0	0.0%	1	0.1%
Friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.4%	1	0.1%
Not applicable	83	73.7%	65	82.1%	38	88.9%	117	78.2%	280	88.1%	583	83.9%
Total	112	100%	78	100%	42	100%	153	100%	313	100%	698	100%

	D		N (d+n)		N (n+d)		HE		LE (d)		Total	
	N	%	N	%	N	%	N	%	N	%		
Partner	3	0.8%	1	1.0%	0	0.0%	2	1.0%	19	2.4%	25	1.7%
Family	24	8.8%	2	1.3%	1	3.3%	5	2.0%	32	4.1%	64	4.4%
Friends	1	0.4%	2	1.8%	0	0.0%	2	1.0%	9	1.2%	14	1.0%
Work colleagues	23	8.4%	10	8.5%	1	1.8%	27	11.4%	35	4.8%	96	6.8%
Other	6	3.1%	2	2.0%	1	1.1%	8	3.3%	5	0.8%	22	1.8%
Partner, family	1	0.2%	0	0.0%	0	0.0%	0	0.0%	4	0.5%	5	0.3%
Partner, friends	1	0.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Partner, work colleagues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%	1	0.1%
Family, friends	1	0.4%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Family, work colleagues	0	0.0%	0	0.0%	0	0.0%	4	1.8%	2	0.2%	6	0.4%
Family, other	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.1%	0	0.0%
Friends, work colleagues	1	0.4%	0	0.0%	0	0.0%	1	0.5%	0	0.0%	2	0.1%
Not applicable	217	77.9%	102	85.9%	34	83.9%	191	79.3%	664	88.1%	1258	83.6%
Total	278	100%	119	100%	37	100%	240	100%	771	100%	1448	100%

c) Non-work trips at night-time

Driver age: < 21 years (n=741)							
	D	N (d>n)		HE		LE (d)	Total
Partner	8	1.1%	1	2.0%	3	5.0%	11
Family	11	1.5%	4	13.3%	4	7.0%	11
Friends	61	8.2%	21	64.5%	34	58.3%	96
Work colleagues	0	0.0%	0	0.0%	0	0.0%	0
Other	0	0.0%	0	0.0%	1	1.3%	0
Partner, friends	2	0.3%	0	0.0%	0	0.0%	1
Family, friends	5	0.7%	1	3.7%	2	3.7%	10
Friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	1
Partner, family, friends	1	0.1%	0	0.0%	0	0.0%	0
Not applicable	51	6.9%	5	18.5%	8	14.7%	13
Total	139	18.8%	32	100%	52	100%	142

Driver age: 21-25 years (n=757)							
	D	N (d>n)		HE		LE (d)	Total
Partner	21	2.8%	12	15.8%	5	12.6%	26
Family	13	1.7%	10	12.8%	3	7.3%	16
Friends	22	2.9%	31	43.0%	19	44.1%	63
Work colleagues	0	0.0%	0	0.0%	0	0.0%	0
Other	0	0.0%	0	0.0%	1	2.9%	0
Partner, family	1	0.1%	0	0.0%	0	0.0%	1
Partner, friends	0	0.0%	0	0.0%	0	0.0%	2
Family, friends	4	0.5%	2	3.1%	0	0.0%	8
Friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	1
Partner, family, friends	0	0.0%	0	0.0%	0	0.0%	1
Family, friends, work colleagues	0	0.0%	0	0.0%	1	4.4%	0
Not applicable	53	7.0%	22	29.3%	8	18.8%	32
Total	114	15.1%	77	100%	42	100%	153

Driver age: 26-50 years (n=1510)							
	D	N (d>n)		HE		LE (d)	Total
Partner	24	3.2%	17	13.9%	5	12.7%	29
Family	72	9.5%	42	34.8%	8	22.9%	87
Friends	5	0.7%	12	9.7%	8	21.7%	26
Other	1	0.1%	0	0.0%	1	1.9%	2
Partner, family	14	1.8%	6	5.1%	0	0.0%	12
Partner, friends	0	0.0%	2	1.6%	1	3.2%	2
Partner, other	0	0.0%	0	0.0%	0	0.0%	0
Family, friends	1	0.1%	3	2.6%	0	0.0%	5
Family, work colleagues	0	0.0%	0	0.0%	0	0.0%	0
Partner, family, friends	1	0.1%	0	0.0%	0	0.0%	1
Partner, family, work colleagues	0	0.0%	0	0.0%	0	0.0%	1
Partner, friends, other	0	0.0%	0	0.0%	0	0.0%	1
Family, friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	1
Family, friends, other	0	0.0%	0	0.0%	1	3.2%	0
Not applicable	162	21.3%	38	31.7%	14	37.8%	73
Total	260	34.3%	120	100%	37	100%	241

d) Work trips at night-time

	Driver age: < 21 years (n=741)									
	D	N (d>n)		N (n>d)		HE	LE (d)		Total	
Partner	1	0.9%	0	0.0%	0	0.0%	0	0.0%	1	0.2%
Family	2	1.7%	0	0.0%	0	0.0%	1	0.4%	4	0.8%
Friends	1	0.8%	2	0.9%	2	3.0%	2	1.3%	9	1.4%
Work colleagues	1	0.9%	2	0.9%	2	4.0%	5	3.0%	15	2.3%
Other	0	0.0%	0	0.0%	0	0.0%	1	0.0%	1	0.2%
Family, friends	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.2%
Not applicable	134	95.9%	28	98.4%	46	91.4%	130	95.1%	270	96.4%
Total	139	100%	32	100%	50	100%	141	100%	279	100%

	Driver age: 21-25 years (n=797)									
	D	N (d>n)		N (n>d)		HE	LE (d)		Total	
Partner	0	0.0%	0	0.0%	0	0.0%	1	0.0%	1	0.1%
Family	0	0.0%	0	0.0%	1	2.9%	0	0.3%	2	0.3%
Friends	1	1.1%	1	1.0%	1	3.0%	5	3.2%	9	1.3%
Work colleagues	0	0.0%	3	3.8%	4	8.5%	6	3.8%	15	2.1%
Other	0	0.0%	0	0.0%	0	0.0%	2	1.8%	2	0.3%
Partner, family	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	0.3%
Family, friends	0	0.0%	0	0.0%	0	0.0%	1	0.8%	1	0.1%
Friends, work colleagues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	0.1%
Not applicable	112	99.0%	74	94.3%	37	85.0%	130	88.9%	300	95.3%
Total	113	100%	78	100%	43	100%	151	100%	314	100%

	Driver age: 26-50 years (n=1510)									
	D	N (d>n)		N (n>d)		HE	LE (d)		Total	
Partner	0	0.0%	1	1.0%	1	3.3%	1	0.5%	5	0.3%
Family	1	0.4%	1	1.0%	1	3.3%	2	0.8%	9	0.6%
Friends	1	0.2%	1	0.8%	0	0.0%	0	0.1%	2	0.1%
Work colleagues	4	1.3%	6	4.1%	3	7.9%	12	4.9%	29	2.0%
Other	0	0.0%	1	1.0%	0	1.1%	4	1.7%	6	0.4%
Partner, family	0	0.0%	0	0.0%	0	0.0%	1	0.5%	1	0.1%
Family, work colleagues	0	0.0%	0	0.0%	0	0.0%	1	0.5%	1	0.1%
Not applicable	274	99.0%	110	92.3%	31	85.4%	219	91.0%	1389	98.3%
Total	280	100%	119	100%	36	100%	240	100%	1442	100%

APPENDIX E

The following tables are included to provide extra summary information regarding the 'validity' of the Residential survey exposure group disaggregations, by comparing the direction of the difference between the day and night groups from the two surveys. Similar to the comparisons between the Residential and RBT night groups, it was not expected that there would be a high correspondence between the results derived from the two surveys.

Viewed strictly, there was not a high level of correspondence for the direction of the difference between the night and day groups across the two surveys. In general, less than half of the variables (*in the first table*) in each age range showed the same direction of difference. However, many of the variables displayed similar values for the night and day groups on one or both of the surveys, even if these results were not in the same direction for both surveys. If a relatively small discrepancy value is allowed, for example 5% between the night and day groups on one or both surveys, many more variables show the same direction of difference. The RBT rating scale data (*in the second table*) again proved to be more akin to the Residential survey data than the other variables, with a higher proportion of the rating scale variables showing the same direction of difference between the night and day groups on the two surveys.

	<21				21-25				26-50			
	Residential Night Drivers n = 88	Residential Day Drivers n = 143	RBT Night Drivers n = 80	RBT Day Drivers n = 19	Residential Night Drivers n = 122	Residential Day Drivers n = 144	RBT Night Drivers n = 154	RBT Day Drivers n = 31	Residential Night Drivers n = 159	Residential Day Drivers n = 282	RBT Night Drivers n = 228	RBT Day Drivers n = 61
Characteristics of Driver												
Sex = male	52.7	54.5	49.0	42.1	51.3	55.7	49.0	51.6	55.0	53.6	48.0	50.8
Post secondary education	18.1	18.6	55.0	31.6	34.4	48.3	58.1	35.5	33.3	47.7	37.6	44.3
Annual income of \$21,000 or more	6.7	10.7	15.2	11.1	47.5	64.9	58.9	76.6	62.1	57.7	77.5	81.3
Married/De facto	1.5	7.8	2.5	0.0	16.5	29.9	16.1	22.6	62.1	81.9	58.0	68.9
Children under 12 years old	2.9	5.1	1.2	0.0	10.3	21.1	7.1	3.2	35.5	57.8	35.4	41.0
Pay rent	47.0	52.6	35.0	42.1	64.9	72.3	58.7	71.0	43.6	28.1	31.4	31.1
Mortgage	1.5	3.9	1.3	0.0	16.2	19.9	11.0	16.1	42.3	50.2	50.7	47.5
Full-time students	33.3	32.3	55.7	42.1	14.0	4.2	19.0	0.0	1.3	0.7	1.7	0.0
Unemployed	8.6	4.2	2.5	5.3	5.8	5.3	2.0	3.2	4.5	1.2	2.6	3.3
Smoke	33.4	35.6	31.6	47.4	38.4	44.2	35.5	36.7	34.1	35.5	31.1	24.6
Characteristics of Vehicle												
Car has personalised number plate	8.6	5.6	18.8	26.3	10.0	7.6	21.3	19.4	7.1	7.9	12.2	14.8
Car is serviced by self	15.5	19.4	12.8	10.5	17.9	21.6	20.4	16.7	18.3	20.4	14.2	8.3
Car is washed weekly	17.6	19.4	23.8	21.1	20.9	18.6	20.0	12.9	15.2	20.6	14.8	16.4
Car is waxed or polished weekly/fortnightly	8.2	9.7	13.8	15.8	6.9	9.2	7.7	6.4	5.0	7.0	6.1	4.9
Car has been modified	19.6	15.8	17.5	21.1	17.0	15.1	18.0	29.0	6.9	9.4	11.4	9.8
Characteristics of Driving Exposure												
Drive own car	49.8	45.2	68.8	68.4	57.3	45.6	74.0	67.1	53.8	37.2	78.9	70.5
Just go for a drive regularly*	15.4	16.0	2.5	5.6	11.7	12.9	3.3	9.7	9.9	7.1	4.4	3.3
Would consult street directory or follow direction most of the time/always	4.4	9.7	10.3	16.7	10.7	8.9	14.3	6.5	10.2	11.7	11.0	9.8
Carry 2 or more passengers**	37.4	31.8	10.3	21.1	24.8	24.3	2.8	9.7	32.1	40.0	14.5	9.8
Usually carry male passengers (male drivers)**	25.6	21.1	21.1	25.0	49.0	39.8	2.9	37.5	50.0	34.5	16.0	6.5
Usually carry male passengers (female drivers)**	34.3	25.9	20.0	36.4	24.0	26.6	16.7	6.7	15.1	26.8	11.7	23.3
Passengers are usually friends**	32.6	22.7	30.8	26.3	21.0	12.0	13.9	16.1	6.4	1.1	12.0	4.9
Loud volume level on radio/cassettes	35.2	32.4	15.0	15.8	23.4	18.4	11.6	22.6	8.4	8.1	2.6	4.9

	Mean Ratings											
	<21				21-25				26-50			
	Residential Night Drivers n=86	Residential Day Drivers n=143	RBT Night Drivers n=80	RBT Day Drivers n=19	Residential Night Drivers n=122	Residential Day Drivers n=144	RBT Night Drivers n=154	RBT Day Drivers n=31	Residential Night Drivers n=159	Residential Day Drivers n=282	RBT Night Drivers n=229	RBT Day Drivers n=61
Driving habits (1=never; 10=always)												
How often do you...												
wear your seatbelt while driving	9.6	9.7	9.8	9.6	9.8	9.6	9.7	9.9	9.8	9.8	9.7	9.9
drive more than 10km/hr above the speed limit in built up areas	4.2	3.9	4.4	3.2	4.5	4.5	4.6	5.2	3.6	3.4	4.0	4.2
stop at stop signs	9.5	9.5	8.7	9.6	9.2	9.4	8.7	9.2	9.7	9.7	9.5	9.7
feel tired when driving at night-time drive more than 10km/hr above the speed limit on open roads	3.4	3.1	3.9	2.6	4.0	2.7	3.4	3.7	3.4	3.0	3.4	3.6
get angry at the actions of other drivers drive more than 10km/hr above the speed limit during the day	5.3	5.7	5.6	3.5	5.4	5.5	5.5	6.1	4.6	4.4	4.5	3.9
drive after having a few drinks	6.2	6.0	6.6	5.2	5.9	6.4	6.1	6.7	4.9	5.4	5.5	5.2
enjoy driving	3.9	4.3	4.6	3.3	4.4	4.6	4.7	4.9	3.3	3.3	3.7	3.8
prefer not to wear a seatbelt drive more than 10km/hr above the speed limit at night-time	1.5	1.5	1.5	1.3	1.8	1.9	1.9	2.2	2.0	1.9	2.1	2.0
enjoy driving	8.0	8.2	8.4	8.8	7.5	7.3	7.5	7.7	7.9	7.5	8.1	8.0
prefer not to wear a seatbelt drive more than 10km/hr above the speed limit at night-time	2.1	1.8	1.7	1.7	1.7	2.0	1.8	1.2	2.0	2.3	2.2	2.3
feel tired when driving during the day	4.0	3.8	4.2	2.7	4.7	4.1	4.7	4.7	3.3	2.7	3.3	3.3
enjoy driving faster than other traffic	2.3	2.1	2.2	1.7	2.4	2.2	2.3	2.3	2.4	2.8	2.6	2.8
enjoy driving faster than other traffic	3.6	3.9	3.3	2.4	3.8	3.5	3.3	3.6	2.8	2.8	2.6	2.5
(1=strongly agree; 10=strongly disagree)												
I think that it is easier to drive at night than during the day	5.7	5.9	4.7	6.2	5.5	6.6	5.8	5.9	6.3	6.6	6.9	7.0
I prefer to drive rather than be a passenger in a car	3.5	2.9	3.0	2.4	3.6	3.4	3.3	3.9	3.9	3.1	2.8	3.6
I prefer to use public transport rather than drive	8.8	8.4	8.9	9.1	8.5	8.6	8.8	9.0	7.9	8.3	8.5	8.6
Personality scales												
(1=strongly agree; 10=strongly disagree)												
I like my life to be planned and organised	4.2	4.3	4.4	3.1	4.0	4.5	4.3	4.7	4.2	3.8	3.8	4.5
Nothing much worries me	4.9	5.1	5.2	5.1	4.6	4.3	5.3	4.7	4.9	4.6	5.4	5.1
When I'm with friends, I have a better time if I drink alcohol	6.5	6.3	7.2	8.1	7.3	7.1	7.6	7.2	7.3	7.1	8.3	8.1
On the whole, I'm satisfied with myself I get annoyed when I'm not allowed to do what I want to	3.6	3.5	3.2	3.2	2.8	3.0	3.8	3.2	3.2	3.2	3.1	3.1
I don't like taking chances	4.1	4.0	4.3	5.7	4.2	4.3	5.1	4.9	5.0	5.5	5.5	6.2
moment	4.8	4.7	5.7	5.0	5.0	4.8	5.4	6.0	4.9	4.1	4.5	5.0
It's OK to occasionally get very drunk	4.0	4.5	4.1	4.8	4.3	4.3	4.7	4.6	4.4	5.1	4.7	5.1
I prefer to do things my own way	5.3	5.2	5.7	7.1	6.2	5.6	6.8	4.8	7.5	7.2	7.8	7.5
I'm satisfied with my life in general	3.0	3.0	3.5	3.5	3.1	3.1	3.6	3.2	3.2	3.5	3.8	4.3
stupid	3.0	3.2	2.7	2.7	2.6	2.6	3.2	2.4	2.8	2.8	2.8	2.8
I don't do anything without first	3.9	4.1	3.0	4.6	3.5	3.8	3.8	3.6	2.9	3.3	3.2	3.7