

FEDERAL GOVERNMENT'S ROAD SAFETY INITIATIVE

**YOUNG DRIVER RESEARCH PROGRAM -
MASS CRASH DATA ANALYSIS**

FORS FATALITY FILE (1988) - SOUTH AUSTRALIA

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FORS Fatality File (1988) - South Australia

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Abstract

This report is fifth in a series examining young versus older driver differences in car crashes for both Australian and USA data. Bivariate analyses examining the similarities and differences between drivers of various age groups involved in fatality crashes for South Australia (1988) were conducted. Results are presented as a series of tables. The data was also examined for day and night-time differences. Conclusions and comparisons between the two data sets are not presented as the 11th report of the series provides an overview of all findings.

Key Words

YOUNG DRIVER, CRASH ANALYSIS, DAY, NIGHT, CAR DRIVER

Notes

- (1) FORS reports are disseminated in the interest of information exchange.
- (2) The view 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 reports.
 - (a) reports generated as a result of research done within FORS are published in the OR series
 - (b) reports of research conducted by other organizations on behalf of FORS are published in the CR series
 - (c) reports based on analyses of FORS' statistical databases are published in the SR series
 - (d) minor reports of research conducted by other organizations on behalf of FORS are published in the MR series.

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1 CHARACTERISTICS OF YOUNG DRIVER CRASHES - MASS CRASH DATA ANALYSIS

1.1 INTRODUCTION

The Monash University Accident Research Centre was commissioned by the Federal Office of Road Safety to undertake the Young Driver Research Program as part of the Federal Government's Road Safety Initiative.

One of the research projects in the Young Driver Research Program involved identifying the characteristics of young driver crashes through supplementing previous literature reviews which identify the known characteristics of young driver crashes, behaviour and performance from experimental, field and evaluation studies.

In addition, this project involved deriving information from a systematic analysis of Australian and US mass crash data to complement information from the literature review. The results of this analysis are presented in a series of reports which are outlined below:

Australian data

Report N°	Data File	State	Year(s)
1	Casualty crash	New South Wales	1986-1990
	"	Victoria	1984-1989
2	"	South Australia	1986-1990
3	FORS Fatality	New South Wales	1988
4	"	Victoria	"
5	"	South Australia	"
6	"	NSW, Victoria and SA combined	"

USA data

Report N°	Data File	US Region	Year(s)
7	GES	North-west	1989
8	"	Mid-west	"
9	"	West	"
10	"	South	"

Overview report

Report N°	
11	Reviews the main findings presented in Report N°s 1 to 10

The tables presented in the first report are accompanied by a discussion of results highlighting the main findings contained in that report, as well as noting some of the difficulties inherent in analysis of large data sets. Reports 2 to 10 contain results presented in tabular form only, although a brief description of the data used is given. Report N° 11 contains an overview of results comprising two sections: the first notes similarities and differences in results between States and compared to the US data; the second compares results with the the main literature findings (see Macdonald; 1994a and 1994b).

This report (Nº 5 in the series) presents combined results for South Australian fatality crashes during 1988, and outlines, in turn:

- the role of mass crash data in identifying problem areas for young driver safety
- the data set used in the study
- the methodology used
- results:
 - general bivariate patterns
 - daytime vs night-time young driver crashes

This study provides a systematic analysis and review of young driver crashes as represented in mass crash data; to date only ad-hoc, fragmented investigations of young driver crashes using mass crash data have been undertaken. This series of reports, therefore, serve as a comprehensive source document on young driver crashes.

1.2 USING MASS CRASH DATA

Mass crash data provide the most complete and readily available details about crash events, in terms of:

- the temporal and spatial details about the crash incident (where and when it occurred)
- driver (and other involved road user) demographics
- environmental conditions when the crash occurred
- the sequence of events preceding the crash (crash types), including the traffic context and vehicle/road user actions.

Due to reporting criteria, these data are also more representative of crashes involving injury (particularly more serious injury) to the road user(s) involved in the crash than of less severe crashes (eg. property damage only crashes).

Information derived from analysis of mass crash data is essential for identifying target areas or 'problems' where countermeasures should be directed. Analysis of mass crash data allows:

- the magnitude of the 'problem' to be ascertained
- the stability of the 'problem' to be determined
- the generality/specificity of the 'problem' to be determined (eg. Are both males and females affected? Does the 'problem' occur at both day and night; in metropolitan and rural locations?).

In using mass crash data to describe the young driver 'problem' and identify target areas, it is important to balance the need to disaggregate the crash problem into homogeneous sub-problems (with similar characteristics), with the number of levels by which the problem is disaggregated. The more homogeneous the sub-problem, the more likely it is that an appropriate countermeasure can be developed that will be effective in reducing that sub-problem; however, in terms of cost-effectiveness, the sub-problem must be sufficiently large for the cost of the countermeasure to be distributed amongst sub-problem members to allow benefits of the countermeasure to, at least, match its costs (Cameron, 1990).

Countermeasures are also more likely to be cost-effective if they target a sub-problem which has a higher than average risk of crash involvement, or of severe injury when involved (Cameron, 1990). The lack of comparable exposure data to determine crash or severity risk of sub-problems compared with average risks, however, means that 'high' risk sub-problems cannot be identified directly in this study.

Information derived from analysis of mass crash data is inherently descriptive in nature; that is, it does not provide information regarding the causal mechanisms or factors leading to a crash occurring. Road user 'errors' or factors causally related to the behaviour and context identified in a crash may only be inferred.

To be successful, a countermeasure must either:

- control and decrease the opportunity for the occurrence of behaviour related to crash problem types via external impositions, or
- 'correct' the causes and behavioural problem related to the critical actions leading to the crash.

Although the former approach has been applied successfully to other road safety problems, it has not led to significant gains in the young driver area. This is because the over-involvement of young drivers in crashes is **not** limited to a small number of crash types (where each could be addressed by a specific strategy), but is a more general phenomenon (Drummond & Triggs, 1991).

In the case of young driver safety, the latter approach is more likely to lead to more **efficient** countermeasures (those which provide greater overlap between a behavioural problem and a countermeasure). However, this can only be achieved by obtaining a better understanding of the behavioural problem (a product of the interaction between performance and motivational factors). A better understanding of the driving process, skilled performance and motivational factors is the first step to achieving this. A description of the behavioural problem may lead to effective countermeasures, but these will be generally less efficient.

Notwithstanding the limitations of mass crash data analysis outlined above, the identification of sub-problems by their relative incidence within the population of young driver crashes is an important criterion for selecting targets for cost-beneficial countermeasures and understanding/interpreting other young driver performance findings.

2 FORS FATALITY FILE (1988) - SOUTH AUSTRALIA - BIVARIATE ANALYSES

2.1 INTRODUCTION

Data was obtained from the FORS Fatality File (1988) of South Australia fatality crashes for 1988. Prior to conducting bivariate analyses (age by variable of interest), the data was modified as follows:

- As the focus of primary interest was young *car* drivers, a driver-based file consisting of car and car derivative drivers was created. Included were drivers of cars (sedans and tourers), station wagons, panel vans and utilities.
- Age of drivers was grouped as follows: 0 to 15, 16 to 25 (16 being the minimum licensing age in South Australia), 26 to 40, 41 to 55 and 56 to 98 years. The benefit of this grouping is that there are only four age group categories which facilitates presentation and discussion of results. The term 'young drivers' refers to 16-25 year old drivers only.
- All 'not known' cases (eg. not known age group, not known day of week, etc) were collapsed with other missing cases. The proportion of not known or missing data generally formed only 2-4% of the total sample.
- Reporting of all categories within some variables (eg. Definition for Classifying Accidents) would have been unwieldy and often unnecessary due to low frequency counts for certain categories. The general practice has been to present categories with a reasonable number of cases and collapse all others. A guide to how variables were collapsed appears in Appendix 1.

2.2 TABLES - BIVARIATE ANALYSES

The tables on the following pages present frequencies for each variable of interest distributed by age group. Consistent with the data presented in the first report, the tables have been grouped as follows (page numbers have been included here for the convenience of the reader):

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Destination of trip	46

FORS FATAL FILE (1988) - SA*
PERSON RESPONSIBLE FOR CRASH BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
This driver responsible	1	50	34	18	20	123
This driver not responsible		19	11	11	4	45
Pedestrian responsible		9	10	2	1	22
More than one person responsible		5	1	1	1	8
No fault		1	1			2
Unit/person in prior event only		1			1	2
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
1		43	32	12	7	94
2	1	42	24	20	19	106
3			1		1	2
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF PERSONS IN CRASH BY DRIVER AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
1		11	10	3	2	26
2		29	19	10	6	64
3	1	21	11	8	8	49
4		11	7	7	7	32
5		7	4	1	1	13
6		1	3	3	3	10
8		1	1			2
	1	81	55	32	27	196

Missing cases = 9

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF PERSONS INJURED IN CRASH BY DRIVER AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
0	1	38	27	8	10	84
1		24	14	8	3	49
2		11	8	7	7	33
3		8	4	6	4	22
4		2	4	3	3	12
7		1				1
	1	84	57	32	27	201

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF PERSONS INJURED IN THIS VEHICLE BY DRIVER

AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
0	1	46	32	13	17	109
1		22	13	12	4	51
2		10	7	4	5	26
3		3	2	1	1	7
4 or more		3	3	2		8
	1	84	57	32	27	201

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF FATALITIES IN CRASH BY DRIVER AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
1	1	78	55	27	25	186
2		6	1	5	2	14
4		1	1			2
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF FATALITIES IN THIS VEHICLE BY DRIVER AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
0	1	37	28	14	6	86
1		44	27	16	19	106
2		4	1	2	2	9
3			1			1
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
DAY OF WEEK BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Monday		3	6	4	3	16
Tuesday		8	2	5	8	23
Wednesday	1	8	4	5	5	23
Thursday		13	4	1		18
Friday		15	13	6	3	37
Saturday		21	16	5	5	47
Sunday		17	12	6	3	38
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Weekday	1	47	29	21	19	117
Weekend	0	38	28	11	8	85
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
TIME PERIOD BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
12 am - 6 am		27	16	2		45
6 am - 12 pm		19	9	8	12	48
12 pm - 6 pm		12	11	10	11	44
6 pm - 12 am	1	27	21	12	4	65
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
TIME PERIOD BY AGE GROUP

N=205

WEEKDAY						
	0-15	16-25	26-40	41-55	56-98	Total
12 am - 6 am		9	3	1		13
6 am - 12 pm		14	5	7	10	36
12 pm - 6 pm		8	7	5	7	27
6 pm - 12 am	1	16	14	8	2	41
	1	47	29	21	19	117

WEEKEND						
	0-15	16-25	26-40	41-55	56-98	Total
12 am - 6 am		18	13	1		32
6 am - 12 pm		5	4	1	2	12
12 pm - 6 pm		4	4	5	4	17
6 pm - 12 am		11	7	4	2	24
	0	38	28	11	8	85

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
CITY/RURAL BOUNDARIES BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Capital city	1	39	23	9	14	86
Provincial urban		11	5		2	18
General rural		33	25	21	11	90
Remote rural		2	3	2		7
Remote town			1			1
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD TYPE BY AGE GROUP

N=205

	0-16	17-25	26-40	41-55	56-98	Total
National highway		6	7	6	5	24
State highway		11	5	3	3	22
Other rural road		27	18	15	6	66
Major arterial city road		16	11	5	5	37
Other urban	1	25	16	3	8	53
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LOCATION BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Mid-block	1	54	39	22	14	130
Within intersection		23	13	10	10	56
Related to intersection		8	5		3	16
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
INTERSECTION TYPE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
X-intersection		14	12	8	6	40
Y-intersection		1				1
T-intersection		16	4	2	6	28
Multi-intersection			1		1	2
	0	31	17	10	13	71

Missing cases = 134

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD CONFIGURATION BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
One way		1				1
Two way undivided	1	43	31	21	10	106
Divided road (dual carriageway)		10	9	1	4	24
	1	54	40	22	14	131

Missing cases = 74

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SPEED LIMIT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
30					1	1
60		35	21	4	10	70
80	1	11	6	1	1	20
100		3	1	4	1	9
110		34	28	23	14	99
	1	83	56	32	27	199

Missing cases = 6

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LAND USE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Residential	1	19	5	2	7	34
Part residential/part commercial		15	10	1	5	31
Non-residential-commercial/industrial		5	3	1	1	10
Urban parkland		5	3	2	1	11
Urban parkland-highway/freeway		2	3	3		8
Rural		37	30	23	13	103
	1	83	54	32	27	197

Missing cases = 8

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
HORIZONTAL ROAD ALIGNMENT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Straight	1	59	38	23	23	144
Curved		26	19	9	4	58
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
VERTICAL ROAD ALIGNMENT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Level	1	63	44	28	20	156
Crest of hill		2		1	1	4
Bottom of hill			1			1
Slope - gentle		9	7	2	2	20
Slope - undefined			1		1	2
	1	74	53	31	24	183

Missing cases = 22

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD SURFACE CONDITION BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Sealed/paved	1	83	55	26	27	192
Unsealed		2	2	6		10
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
TYPE OF TRAFFIC CONTROLS PRESENT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Non present mid-block	1	53	38	22	11	125
None present at intersection		15	9	2	7	33
Stop sign		4	2	2		8
Give way sign		5	3	4	4	16
Double unbroken lines		1				1
Flashing signals					1	1
Traffic control signals - car only		3			1	4
Traffic control signals with walk/don't walk		2	3	2	1	8
Railway crossing lights		1	1		1	3
Warning signs			1		1	2
	1	84	57	32	27	201

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

ELECTRONIC TRAFFIC CONTROLS FUNCTIONING BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
On, fully functioning		6	4	2	4	16
No electronic traffic controls	1	78	53	30	23	185
	1	84	57	32	27	201

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SEX OF DRIVER BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Male	1	72	46	25	19	163
Female		13	11	7	8	39
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
BAC GROUP OF DRIVER BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
0 - <.02		31	27	15	21	94
<.05		3	3			6
.05 - .079		8				8
.08 - .12		9	2			11
.12 - .15		8	4		1	13
>.15		11	10	9		30
	0	70	46	24	22	162

Missing cases = 43

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
RESTRAINT USE BY DRIVER BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Restraint worn		22	18	13	5	58
Restraint not worn		9	5	1	4	19
	0	31	23	14	9	77

Missing cases = 128

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LICENCE TYPE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Standard		57	40	19	17	133
Learner's permit		3				3
Provisional		11				11
Disqualified			1			1
Other		1	1			2
		72	42	19	17	150

Missing cases = 55

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
YEARS DRIVING EXPERIENCE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Less than 1		5	1			6
1		12				12
2		6	1		1	8
3		6				6
4		10		1		11
5		1				1
6 or more		16	25	15	12	68
	0	56	27	16	13	112

Missing cases = 93

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
STATE OF LICENCE ISSUE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
New South Wales		3		1		4
Victoria		1	2		1	4
South Australia		69	37	20	16	142
Overseas		1	1			2
Other (eg. surrendered licence)			2			2
Never held licence	1	5				6
	1	79	42	21	17	160

Missing cases = 45

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF OCCUPANTS BY DRIVER AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
1	1	40	27	15	14	97
2		23	13	12	8	56
3		9	9	3	4	25
4		6	3	2	1	12
5 or more		4	3			7
	1	82	55	32	27	197

Missing cases = 8

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SPEED CATEGORY BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Not over/unlikely over speed limit		44	38	20	26	128
Possibly over speed limit		15	4	3	1	23
Definitely over speed limit	1	14	4	3		22
Within legal limit, but excessive for road conditions		2	2	3		7
	1	75	48	29	27	180

Missing cases = 25

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

SPEED OF VEHICLE AT TIME OF CRASH BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
0 - 20		3	7	2	3	15
21 - 40		1	2	2	3	8
41 - 60		13	8	1	8	30
61 - 80		4	3	3	1	11
81 - 100		8	7	6	1	22
Over 101	1	12	2	1		16
	1	41	29	15	16	102

Missing cases = 103

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
YEAR OF VEHICLE MANUFACTURE BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
1986-1988		8	7	8	3	26
1981-1985	1	13	19	7	9	49
1976-1980		17	10	10	4	41
1971-1975		33	13	4	6	56
1970 and earlier		8	3	1	3	15
	1	79	52	30	25	187

Missing cases = 18

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
NATURAL LIGHT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Day		33	21	21	23	98
Night	1	50	32	10	3	96
Dawn		2	1	1		4
Dusk			3		1	4
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
STREET LIGHT CONDITIONS BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Operating (visibility good)		12	5	2	1	20
Poor/inadequate (visibility impaired)	1	6	3			10
Operating (visibility status not stated)		4	1	1		6
Not operating (visibility impaired - dark)			3			3
Street lighting doesn't exist (visibility impaired - dark)		23	18	7	3	51
Operation unknown		1				1
Existence unknown		6	6	1		13
	1	52	36	11	4	104

Missing cases = 101

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
WEATHER CONDITIONS BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Fine	1	79	50	31	22	183
Light/moderate rain		6	4		3	13
Heavy rain			2		1	3
Fog				1	1	2
Strong winds			1			1
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
PRIMARY ACCIDENT CLASS BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Motor vehicles - collisions						
- other motor vehicle		35	24	20	19	98
- other road vehicle		4				4
- train		1			1	2
- pedestrian	1	15	13	2	3	34
- object		25	14	7	3	49
Motor vehicles - non-collisions						
- overturn on carriageway			3		1	4
- overturn off carriageway		4	3	3		10
- run off road		1				1
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
DCA EVENT BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Pedestrian on foot or in toy/pram						
- far side		9	5	1		15
- other	1	6	8	1	3	19
Vehicles from adjacent directions (intersection only)						
- cross traffic		12	4	5	5	26
- other		4	3	2	5	14
Vehicles from opposing directions						
- head on (not overtaking)		8	11	10	5	34
- right thru		5	4	1	1	11
Vehicles from same direction						
- rear end		3			1	4
- other		3		1	1	5
Manoeuvring			2		1	3
Overtaking		3		1		4
On path		1			1	2
Off path, on straight						
- left off carriageway into object/parked vehicle		6	4	1	1	12
- right off carriageway into object/parked vehicle		3	5	3		11
- other		4	4	1	1	10
Off path, on curve or turning						
- off carriageway, left on right bend into object/parked vehicle		6	2		1	9
- off carriageway, right on right bend into object/parked vehicle		5		2		7
- other		6	5	3		14
Passengers/miscellaneous		1			1	2
	1	85	57	32	27	202

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
MAJOR FACTOR BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Driver						
- intoxication		30	19	9	3	61
- other drug		1				1
- alcohol + drug		1		1		2
- asleep or fatigued		4	2	1	1	8
Attention distracted		5	1		2	8
Inadequate supervision (learner)	1	5				6
Excessive speed		7	4	1		12
Failure to observe person or vehicle		5	5	1	8	19
Vision obscured			1	2	1	4
Road surface problem		3	1	3	1	8
Pedestrian or cyclist at fault		9	8	1		18
Failure to observe traffic control (car/m/cycle)		4	7	8	7	26
Failure to observe traffic control (pedestrian)		1			1	2
Critical vehicle defect		1				1
Other		3	4		2	9
	1	79	52	27	26	185

Missing cases = 20

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ORIGIN OF TRIP BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Home		15	5	6	5	31
Work		1	7	2	1	11
Recreation	1	38	21	9	7	76
Private business		1	2		2	5
	1	55	35	17	15	123

Missing cases = 82

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
DESTINATION OF TRIP BY AGE GROUP

N=205

	0-15	16-25	26-40	41-55	56-98	Total
Home		20	18	8	4	50
Work		8	5	3	2	18
Recreation		14	4	4	5	27
Private business		2	2		1	5
Other			1	1	2	4
	0	44	30	16	14	104

Missing cases = 101

* Frequencies comprise drivers of cars and car derivatives only

3 FORS FATALITY FILE (1988) - SOUTH AUSTRALIA - DAY/NIGHT COMPARISONS

3.1 INTRODUCTION

Bivariate analyses which showed drivers who were involved in fatality crashes in South Australia during 1988 split by age group appeared in the previous chapter. There are numerous ways in which the data can be analyzed and an important consideration is any age group differences arising as a result of the time of day, given the increased risk of night-time driving relative to driving during the day. The current chapter re-examines the fatality crash data with the following modification:

- 'day' was operationally defined as the period between 6.00 am and 5.59 pm while 'night' was defined as the period between 6.00 pm and 5.59 am.
- All 'not known' cases (eg. not known age group, not known day of week, etc) were collapsed with other missing cases. Missing and unknown cases make up approximately 2-4% of the total sample for most variables.

3.2 INTERPRETATION OF TABLES

The day/night comparisons revealed that young drivers (drivers aged between 16 and 25 years) formed 34% of all drivers involved in daytime crashes and 49% of all drivers involved in night-time crashes.

What information can be gleaned from these tables? As an example, the table for number of vehicles involved in the crash shows that young drivers made up 40% of all drivers involved in single-vehicle daytime crashes and 48% of drivers involved in single-vehicle night-time crashes. However, the total number of drivers involved in single-vehicle crashes was greater at night ($n=64$) than during the day ($n=30$). Young drivers also showed an increase in numbers from day to night (12 and 31 respectively). Hence, in absolute terms, there was about a 158% increase in the number of young drivers involved in single vehicle collisions at night.

A proportional increase was also observed for young drivers involved in daytime (33%) and night-time (50%) crashes occurring at intersections where vehicles were travelling in adjacent directions (see DCA event). The actual number of drivers involved in such daytime crashes ($n=23$), however, was similar to the number of drivers involved in similar night-time crashes ($n=16$). Care must be taken, therefore, in interpreting proportions resulting from different sample sizes because an apparently large proportional increase may actually address a similar number of crashes.

Ratio comparisons between drivers is another way of interpreting results. The number of young male drivers involved in daytime crashes resulting in a fatality was 25 compared to 6 young female drivers. This gives a ratio of 4:1. Where night-time crashes were concerned, the number of young male drivers involved in fatal crashes was 47 compared to 7 young female drivers: a ratio of 7:1. This difference between daytime and night-time ratios between male and female drivers indicates that the probability of young male drivers

being involved in fatal crashes relative to young female drivers is greater at night than during the day.

There are a few points to keep in mind when interpretation of these results are made:

- It is necessary to note the sample size or the number of cases present when making comparisons. For example, when making day/night comparisons, in most cases, the sample size of drivers involved in night-time crashes is less than those of drivers involved in daytime crashes, despite the higher proportion of young drivers involved in night-time crashes.
- The number of years that make up each age group differ. For example, young drivers (16-25 years) covers ten years while the 26-40 age group covers 14 years. Thus, similar proportions between these age groups indicate an over-involvement of young drivers of almost two per year of age.
- The increase in young driver proportions involved in night-time crashes may be a result of any of the following reasons:
 - young drivers allocate a higher proportion of their total driving to night-time driving, and/or young drivers having a greater propensity to engage in risky driving behaviour at night
 - older drivers allocate a lower proportion of their total driving to night-time driving, and/or older drivers tend to engage in safe driving behaviour at night.

Hence, the over-involvement of one age group may be a result of a relative under-involvement of other age groups.

3.3 TABLES - DAY/NIGHT COMPARISONS

Variables and page numbers are listed here for the convenience of the reader:

	Page
DESCRIPTION OF CRASH	
Person responsible for crash	50
Number of vehicles involved	51
Number of persons in crash	52
Number of persons injured in crash	53
Number of persons injured in this vehicle	54
Number of fatalities in crash	55
Number of fatalities in this vehicle	56
WHEN DID THE CRASHES OCCUR?	
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Weekday versus weekend	58
Time period by weekday/weekend	59

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WHERE DID THE CRASHES OCCUR?	
City/rural boundaries	60
Road type	61
Location	62
Intersection type	63
Road configuration	64
Speed limit	65
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Sex of driver	72
BAC group	73
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Licence type	75
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State of licence issue	77
WHAT WERE THE FACTORS WITHIN THE VEHICLE - PASSENGERS	
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Year of vehicle manufacture	81
WHAT WERE THE ENVIRONMENTAL CONDITIONS?	
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Origin of trip	89
Destination of trip	90

FORS FATAL FILE (1988) - SA*
PERSON RESPONSIBLE FOR CRASH BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
This driver responsible		15	11	7	17	50
This driver not responsible		9	5	8	3	25
Pedestrian responsible		4	4	2	1	11
More than one person responsible		2		1	1	4
No fault						0
Unit/person in prior event only		1			1	2
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
This driver responsible	1	35	23	11	3	73
This driver not responsible		10	6	3	1	20
Pedestrian responsible		5	6			11
More than one person responsible		3	1			4
No fault		1	1			2
Unit/person in prior event only						0
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
NUMBER OF VEHICLES INVOLVED BY AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
	1		12	9	3	6
	2		19	10	15	16
	3			1		1
	Total	0	31	20	18	23

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
	1		31	23	9	1
	2	1	23	14	5	3
	Total	1	54	37	14	4

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
NUMBER OF PERSONS IN CRASH BY DRIVER AGE GROUP

N=205

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
1			2	3		1	6
2			14	7	4	5	30
3			8	2	5	6	21
4			2	2	5	7	16
5			2	3	1	1	7
6				3	3	3	9
7 or more			1				1
		0	29	20	18	23	90

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
1			9	7	3	1	20
2			15	12	6	1	34
3	1		13	9	3	2	28
4			9	5	2		16
5			5	1			6
6			1				1
7 or more				1			1
		1	52	35	14	4	106

Missing cases =9

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF PERSONS INJURED IN CRASH BY DRIVER AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
		Total				
0			13	10	3	8
1			12	5	4	2
2			2	1	4	6
3			3	1	4	4
4				3	3	3
5						0
6 or more			1			1
			31	20	18	23
						92

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
		Total				
0	1	25	17	5	2	50
1		12	9	4	1	26
2		9	7	3	1	20
3		5	3	2		10
4		2	1			3
		1	53	37	14	4
						109

Missing cases = 4

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF PERSONS INJURED IN THIS VEHICLE BY DRIVER

AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
		Total				
0			17	13	7	13
1			9	2	6	4
2			3	2	3	5
3			1	1		1
4 or more			1	2	2	
	0	31	20	18	23	92

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
		Total				
0	1	29	19	6	4	59
1		13	11	6		30
2		7	5	1		13
3		2	1	1		4
4 or more		2	1			3
	1	53	37	14	4	109

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF FATALITIES IN CRASH BY DRIVER AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
	1		27	18	14	21
	2		3	1	4	2
	4		1	1		
	Total	0	31	20	18	23

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
	1	1	51	37	13	4
	2		3		1	
	Total	1	54	37	14	4

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF FATALITIES IN THIS VEHICLE BY DRIVER AGE GROUP

N=205

DAY						
	0-15	16-25	26-40	41-55	56-98	Total
0		17	10	11	6	44
1		12	8	6	15	41
2		2	1	1	2	6
3			1			1
	0	31	20	18	23	92

NIGHT						
	0-15	16-25	26-40	41-55	56-98	Total
0	1	20	18	3		42
1		32	19	10	4	65
2		2		1		3
	1	54	37	14	4	110

Missing cases = 3

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD TYPE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Monday		2	3	3	3	11
Tuesday		5	1	2	7	15
Wednesday		4	1	4	5	14
Thursday		6	2	1		9
Friday		5	5	2	2	14
Saturday		4	4	3	3	14
Sunday		5	4	3	3	15
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Monday		1	3	1		5
Tuesday		3	1	3	1	8
Wednesday	1	4	3	1		9
Thursday		7	2			9
Friday		10	8	4	1	23
Saturday		17	12	2	2	33
Sunday		12	8	3		23
	1	54	37	14	4	110

Missing cases = 3

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
WEEKDAY VERSUS WEEKEND BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Weekday	0	22	12	12	17	63
Weekend	0	9	8	6	6	29
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Weekday	1	25	17	9	2	54
Weekend	0	29	20	5	2	56
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
TIME BY WEEKDAY/WEEKEND BY AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
		Total				
Weekday:	6 am - 12 pm		14	5	7	10
	12 pm - 6 pm		8	7	5	7
Weekend:	6 am - 12 pm		5	4	1	2
	12 pm - 6 pm		4	4	5	4
		0	31	20	18	23
		92				

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
		Total				
Weekday:	6 pm - 12 am	1	16	14	8	2
	12 am - 6 am		9	3	1	
Weekend:	6 pm - 12 am		11	7	4	2
	12 am - 6 am		18	13	1	
		1	54	37	14	4
		110				

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
CITY/RURAL BOUNDARIES BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Capital city		16	9	7	12	44
Provincial urban		7	2		2	11
General rural		7	8	10	9	34
Remote rural		1	1	1		3
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Capital city	1	23	14	2	2	42
Provincial urban		4	3			7
General rural		26	17	11	2	56
Remote rural		1	2	1		4
Remote town			1			1
	1	54	37	14	4	110

Missing cases = 3

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD TYPE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
National highway		2	2	2	4	10
State highway		5	3	2	3	13
Other rural road		8	5	7	5	25
Major arterial city road		7	3	4	3	17
Other urban		9	7	3	8	27
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
National highway		4	5	4	1	14
State highway		6	2	1		9
Other rural road		19	13	8	1	41
Major arterial city road		9	8	1	2	20
Other urban	1	16	9			26
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LOCATION BY AGE GROUP

N=1809

	DAY					Total
	0-15	16-25	26-4-	41-55	56-98	
Mid-block		16	14	9	12	51
Within intersection		10	4	9	8	31
Related to intersection		5	2		3	10
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-4-	41-55	56-98	
Mid-block	1	38	25	13	2	79
Within intersection		13	9	1	2	25
Related to intersection		3	3			6
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
INTERSECTION TYPE BY AGE GROUP

N=205

	DAY				
	0-15	16-25	26-40	41-55	56-98
X-intersection		7	5	8	4
T-intersection		8		1	6
Multi-Intersection			1		1
		15	6	9	11
					41

	NIGHT				
	0-15	16-25	26-40	41-55	56-98
X-intersection		7	7		2
Y-intersection		1			
T-intersection		8	4	1	
	0	16	11	1	2
					30

Missing cases = 134

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD CONFIGURATION BY AGE GROUP

N=205

	DAY				
	0-15	16-25	26-40	41-55	56-98
Two way undivided		10	12	9	9
Divided road (dual carriageway)		6	2		3
	0	16	14	9	12
					51

	NIGHT				
	0-15	16-25	26-40	41-55	56-98
One way		1			
Two way undivided	1	33	19	12	1
Divided road (dual carriageway)		4	7	1	1
	1	38	26	13	2
					80

Missing cases = 74

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SPEED LIMIT BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
30					1	1
60		16	9	3	9	37
80		2	2	1		5
100		1		3	1	5
110		12	8	11	12	43
	0	31	19	18	23	91

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
60		19	12	1	1	33
80	1	9	4		1	15
100		2	1	1		4
110		22	20	12	2	56
	1	52	37	14	4	108

Missing cases = 6

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LAND USE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Residential		9	1	1	7	18
Part residential/part commercial		8	6	1	4	19
Non-residential-commercial/industrial		2	1		1	4
Urban parkland			1	2		3
Urban parkland-highway/freeway			1	3		4
Rural		11	10	11	11	43
	0	30	20	18	23	91

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Residential	1	10	4	1		16
Part residential/part commercial		7	4		1	12
Non-residential-commercial/industrial		3	2	1		6
Urban parkland		5	2		1	8
Urban parkland-highway/freeway		2	2			4
Rural		26	20	12	2	60
	1	53	34	14	4	106

Missing cases = 8

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
HORIZONTAL ROAD ALIGNMENT BY AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
Straight	Curved	Total				
			25	14	15	19
			6	6	3	4
		0	31	20	18	23

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
Straight	Curved	Total				
		1	34	24	8	4
			20	13	6	
		1	54	37	14	4

Missing cases = 3

-
- Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
VERTICAL ROAD ALIGNMENT BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Level		26	16	16	16	74
Crest of hill		1		1	1	3
Slope - gentle		2	2	1	2	7
Slope - undefined			1		1	2
	0	29	19	18	20	86

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Level	1	37	28	12	4	82
Crest of hill		1				1
Bottom of hill			1			1
Slope - gentle		7	5	1		13
	1	45	34	13	4	97

Missing cases = 22

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ROAD SURFACE CONDITION BY AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
Sealed/paved	Unsealed		30	20	15	23
			1		3	
		0	31	20	18	23
						92

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
Sealed/paved	Unsealed	1	53	35	11	4
			1	2	3	
		1	54	37	14	4
						110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
TYPE OF TRAFFIC CONTROLS PRESENT BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Non present mid-block		16	13	9	9	47
None present at intersection		8	2	1	7	18
Stop sign		1		2		3
Give way sign		4	1	4	3	12
Double unbroken lines		1				1
Flashing signals					1	1
Traffic control signals - car only		1				1
Traffic control signals with walk/don't walk			2	2	1	5
Railway crossing lights			1		1	2
Warning signs			1		1	2
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Non present mid-block	1	37	25	13	2	78
None present at intersection		7	7	1		15
Stop sign		3	2			5
Give way sign		1	2		1	4
Traffic control signals - car only		2			1	3
Traffic control signals with walk/don't walk		2	1			3
Railway crossing lights		1				1
	1	53	37	14	4	109

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

ELECTRONIC TRAFFIC CONTROLS FUNCTIONING BY AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
On, fully functioning			1	3	2	3
No electronic traffic controls			29	17	16	20
		0	30	20	18	23
						91

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
On, fully functioning			5	1		1
No electronic traffic controls		1	49	36	14	3
		1	54	37	14	4
						110

Missing cases = 4

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SEX OF DRIVER BY AGE GROUP

N=205

		DAY					
		0-15	16-25	26-40	41-55	56-98	Total
Male			25	15	15	15	70
Female			6	5	3	8	22
		0	31	20	18	23	92

		NIGHT					
		0-15	16-25	26-40	41-55	56-98	Total
Male		1	47	31	10	4	93
Female			7	6	4		17
		1	54	37	14	4	110

Missing cases = 3

*•Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
BAC GROUP OF DRIVER BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
0 - <.02		17	14	12	18	61
<.05		2	1			3
.05 - .079		2				2
.08 - .12						0
.12 - .15		1			1	2
>.15			1	1		2
	0	22	16	13	19	70

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
0 - <.02		14	13	3	3	33
<.05		1	2			3
.05 - .079		6				6
.08 - .12		9	2			11
.12 - .15		7	4			11
>.15		11	9	8		28
	0	48	30	11	3	92

Missing cases = 43

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
RESTRAINT USE BY DRIVER BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Restraint worn		6	9	9	5	29
Restraint not worn		1	2		3	6
	0	7	11	9	8	35

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Restraint worn		16	9	4		29
Restraint not worn		8	3	1	1	13
	0	24	12	5	1	42

Missing cases = 128

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
LICENCE TYPE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Standard		22	17	10	16	65
Learner's permit		2				2
Provisional		2				2
Other		1				1
	0	27	17	10	16	70

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Standard		35	23	9	1	68
Learner's permit		1				1
Provisional		9				9
Disqualified			1			1
Other			1			1
	0	45	25	9	1	80

Missing cases = 55

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
YEARS DRIVING EXPERIENCE BY AGE GROUP

N=205

DAY						
	0-15	16-25	26-40	41-55	56-98	Total
Less than 1		2				2
1		5				5
2		2			1	3
3		3				3
4		3		1		4
5		1				1
6 or more		8	10	11	11	40
	0	24	10	12	12	58

NIGHT						
	0-15	16-25	26-40	41-55	56-98	Total
Less than 1		3	1			4
1		7				7
2		4	1			5
3		3				3
4		7				7
5						0
6 or more		8	15	4	1	28
	0	32	17	4	1	54

Missing cases = 93

FORS FATAL FILE (1988) - SA*
STATE OF LICENCE ISSUE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
New South Wales				1		1
Victoria		1			1	2
South Australia		26	16	13	15	70
Overseas		1	1			2
Never held licence		1				1
	0	29	17	14	16	76

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
New South Wales		3				3
Victoria			2			2
South Australia		43	21	7	1	72
Other (eg. surrendered licence)			2			2
Never held licence	1	4				5
	1	50	25	7	1	84

Missing cases = 45

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

NUMBER OF OCCUPANTS BY DRIVER AGE GROUP

N=205

		DAY				
		0-15	16-25	26-40	41-55	56-98
	1		16	10	9	10
	2		9	2	6	8
	3		2	4	1	4
	4		1	3	2	1
	5 or more		1	1		
		0	29	20	18	23
						90

		NIGHT				
		0-15	16-25	26-40	41-55	56-98
	1	1	24	17	6	4
	2		14	11	6	
	3		7	5	2	
	4		5			
	5 or more		3	2		
		1	53	35	14	4
						107

Missing cases = 8

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
SPEED CATEGORY BY AGE GROUP

N=205

	DAY				
	0-15	16-25	26-40	41-55	56-98
Not over/unlikely over speed limit		18	15	15	22
Possibly over speed limit		5			1
Definitely over speed limit		4	1		
Within legal limit, but excessive for road conditions			1	2	
	0	27	17	17	23

70
6
5
3
84

	NIGHT				
	0-15	16-25	26-40	41-55	56-98
Not over/unlikely over speed limit		26	23	5	4
Possibly over speed limit		10	4	3	
Definitely over speed limit	1	10	3	3	
Within legal limit, but excessive for road conditions		2	1	1	
	1	48	31	12	4

58
17
17
4
0
96

Missing cases = 25

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*

SPEED OF VEHICLE AT TIME OF CRASH BY AGE GROUP

N=205

	DAY				
	0-15	16-25	26-40	41-55	56-98
0 - 20		1	3	1	2
21 - 40			1	2	2
41 - 60		7	4	1	8
61 - 80		2	1	3	1
81 - 100		3	3	4	1
Over 101		5	2		
	0	18	14	11	14
					57

	NIGHT				
	0-15	16-25	26-40	41-55	56-98
0 - 20		2	4	1	1
21 - 40		1	1		1
41 - 60		6	4		
61 - 80		2	2		
81 - 100		5	4	2	
Over 101	1	7		1	
	1	23	15	4	2
					45

Missing cases = 103

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
YEAR OF VEHICLE MANUFACTURE BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
1986-1988		3	4	6	3	16
1981-1985		5	11	3	7	26
1976-1980		7	1	7	3	18
1971-1975		12	2	2	5	21
1970 and earlier		2			3	5
	0	29	18	18	21	86

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
1986-1988		5	3	2		10
1981-1985	1	8	8	4	2	23
1976-1980		10	9	3	1	23
1971-1975		21	11	2	1	35
1970 and earlier		6	3	1		10
	1	50	34	12	4	101

Missing cases = 18

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
STREET LIGHT CONDITIONS BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Operating (visibility good)				1		1
Poor/inadequate (visibility impaired)		1				1
Operating (visibility status not stated)		1				1
Street lighting doesn't exist (visibility impaired - dark)		1	2		1	4
Operation of street lighting unknown		1				1
Existence of street lighting unknown		1				1
	0	5	2	1	1	9

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Operating (visibility good)		12	5	1	1	19
Poor/inadequate (visibility impaired)	1	5	3			9
Operating (visibility status not stated)		3	1	1		5
Not operating (visibility impaired - dark)			3			3
Street lighting doesn't exist (visibility impaired - dark)		22	16	7	2	47
Existence of street lighting unknown		5	6	1		12
	1	47	34	10	3	95

Missing cases = 101

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
WEATHER CONDITIONS BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Fine		28	17	17	19	81
Light/moderate rain		3	2		2	7
Heavy rain			1		1	2
Fog				1	1	2
	0	31	20	18	23	92

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Fine	1	51	33	14	3	102
Light/moderate rain		3	2		1	6
Heavy rain			1			1
Strong winds			1			1
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
PRIMARY ACCIDENT CLASS BY AGE GROUP

N=205

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
Motor vehicles - collisions						
- other motor vehicle		16	10	15	16	57
- other road vehicle		3				3
- train					1	1
- pedestrian		7	4	2	3	16
- object		5	4		2	11
Motor vehicles - non-collisions						
- overturn on carriageway			1		1	2
- overturn off carriageway			1	1		2
	0	31	20	18	23	92

NIGHT						
	0-15	16-25	26-40	41-55	56-98	Total
Motor vehicles - collisions						
- other motor vehicle		19	14	5	3	41
- other road vehicle		1				1
- train		1				1
- pedestrian	1	8	9			18
- object		20	10	7	1	38
Motor vehicles - non-collisions						
- overturn on carriageway			2			2
- overturn off carriageway		4	2	2		8
- run off road		1				1
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
DCA EVENT BY AGE GROUP

N=205

	DAY				
	0-15	16-25	26-40	41-55	56-98
Pedestrian on foot or in toy/pram					
- far side		6	2	1	
- other		1	2	1	3
Vehicles from adjacent directions (Intersection only)					
- cross traffic		5	2	5	3
- other		3		1	5
Vehicles from opposing directions					
- head on (not overtaking)		4	5	6	5
- right thru		1	2	1	1
Vehicles from same direction					
- rear end		1			1
- other		2		1	1
Manoeuvring			1		
Overtaking					
- head on		3		1	
On path					1
Off path, on straight					
- left off carriageway into object/parked vehicle		1	2		
- right off carriageway into object/parked vehicle		2	2		
- other		1	2		1
Off path, on curve or turning					
- off carriageway, left on right bend into object/parked vehicle					1
- other		1		1	
Passengers/miscellaneous					1
	0	31	20	18	23
					92

FORS FATAL FILE (1988) - SA*
DCA EVENT BY AGE GROUP

N=205

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Pedestrian on foot or in toy/pram						
- far side		3	3			6
- other	1	5	6			12
Vehicles from adjacent directions (intersection only)						
- cross traffic		7	2		2	11
- other		1	3	1		5
Vehicles from opposing directions						
- head on (not overtaking)		4	6	4		14
- right thru		4	2			6
Vehicles from same direction						
- rear end		2				2
- other		1				1
Manoeuvring			1		1	2
On path		1				1
Off path, on straight						
- left off carriageway into object/parked vehicle		5	2	1	1	9
- right off carriageway into object/parked vehicle		1	3	3		7
- other		3	2	1		6
Off path, on curve or turning						
- off carriageway, left on right bend into object/parked vehicle		6	2			8
- off carriageway, right on left bend into object/parked vehicle		5		2		7
- other		5	5	2		12
Passengers/miscellaneous		1				1
	1	54	37	14	4	110

Missing cases = 3

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
MAJOR FACTOR BY AGE GROUP

N=205

	DAY					
	0-15	16-25	26-40	41-55	56-98	Total
Driver						
- intoxication		3	1	1	2	7
- asleep or fatigued		2	2			4
Attention distracted					2	2
Inadequate supervision (learner)		3				3
Excessive speed		4	2	1		7
Failure to observe person or vehicle		2	1	1	7	11
Vision obscured		1		2	1	4
Road surface problem		2	1	1	1	5
Pedestrian or cyclist at fault		5	4	1		10
Failure to observe traffic control (car/m/cycle)		3	4	8	6	21
Pedestrian failed to observe traffic control					1	1
Critical vehicle defect		1				1
Other		3	3		2	8
	0	29	18	15	22	84

N=205

Missing cases = 20

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
ORIGIN OF TRIP BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Home		11	3	3	4	21
Work		1	3	2	1	7
Recreation		5	5	2	7	19
Private business		1	1		1	3
		18	12	7	13	50

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Home		4	2	3	1	10
Work			4			4
Recreation	1	33	16	7		57
Private business			1		1	2
	1	37	23	10	2	73

Missing cases = 82

* Frequencies comprise drivers of cars and car derivatives only

FORS FATAL FILE (1988) - SA*
DESTINATION OF TRIP BY AGE GROUP

N=205

	DAY					Total
	0-15	16-25	26-40	41-55	56-98	
Home		2	3	1	4	10
Work		7	2	2	2	13
Recreation		4	4	3	5	16
Private business		1	1		1	3
Other		1			1	2
	0	15	10	6	13	44

	NIGHT					Total
	0-15	16-25	26-40	41-55	56-98	
Home		18	15	7		40
Work		1	3	1		5
Recreation		10		1		11
Private business		1	1			2
Other				1	1	2
	0	30	19	10	1	60

Missing cases = 101

* Frequencies comprise drivers of cars and car derivatives only

REFERENCES

- Cameron, M (1992), Accident Data Analysis to Develop Target Groups for Countermeasures, Clayton: Accident Research Centre, Monash University (draft report)
- Drummond, A E and Triggs, T J (1991), Driving as Skilled Performance: a Perspective For Improving Young Driver Safety, Clayton: Accident Research Centre, Monash University (unpublished report)
- FORS (1988), Federal Office of Road Safety Fatal File (1988): Documentation of File Structure, Canberra
- Macdonald, W A (1994a), Young Driver Research Program: A Review of Information on Young Driver Crashes, Report No CR 128, Canberra: Federal Office of Road Safety
- Macdonald, W A (1994b), Young Driver Research Program: A Review of Information on Young Driver Performance Characteristics and Capacities, Report No CR 129, Canberra: Federal Office of Road Safety

**APPENDIX 1: GUIDE TO COLLAPSING OF VARIABLES FOR FORS FATAL
FILE (1988) - SOUTH AUSTRALIA**

DAY OF WEEK

Working week:	Monday Tuesday Wednesday Thursday Friday	Weekend:	Saturday Sunday
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TIME

Day:	0600-1759 hours	Night:	1800-0559 hours
12 am - 6 am	2400 - 0559 hours	12 pm - 6 pm	1200 - 1759 hours
6 am - 12 pm	0600 - 1159 hours	6 pm - 12 am	1800 - 2359 hours

ROAD USER MOVEMENT

Pedestrian on foot or in toy/pram

far side

other:	near side emerging playing, working, lying, standing on carriageway walking with traffic facing traffic on footpath/median driveway other
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Vehicles from adjacent directions (intersection only)

cross traffic

other:	right near right far
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Vehicles from opposing directions

head on (not overtaking)

right thru

Vehicles from same direction

- same lane

rear end

other:	left rear right rear
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APPENDIX 1: GUIDE TO COLLAPSING OF VARIABLES FOR FORS FATAL FILE (1988) - SOUTH AUSTRALIA

Manoeuvring: U-turn
U-turn into fixed object/parked vehicle
leaving/entering parking
parked vehicles only
reversing
reversing into fixed object/parked vehicle
emerging from driveway
from footpath
other manoeuvring

Overtaking: head on
out of control
pulling out
overtake turning
cutting in
pulling out rear end
other overtaking

On path: parked
double parked
accident or broken down
vehicle door
permanent obstruction on carriageway
temporary roadworks
struck object on carriageway
animal (not ridden)
other on path

Off path, on straight

left off carriageway into object/parked vehicle
right off carriageway into object/parked vehicle
other: off carriageway to left or right (rollover)
out of control on carriageway (rollover)
off end of road/t-intersection
other straight

Off path, on curve or turning

off carriageway, left on right bend into object/parked vehicle
off carriageway, right on right bend into object/parked vehicle
other: off carriageway to left on right bend
off carriageway, right on left bend into object/parked vehicle
off carriageway, left on left bend into object/parked vehicle
off carriageway to right on right bend
off carriageway to right on left bend
off carriageway to left on left bend
out of control on carriageway
other curve

**APPENDIX 1: GUIDE TO COLLAPSING OF VARIABLES FOR FORS FATAL
FILE (1988) - SOUTH AUSTRALIA**

Passengers/miscellaneous:

- fell in/from vehicle
- load or missile struck vehicle
- struck train/aeroplane
- parked vehicle run away into object/parked vehicle
- parked vehicle run away into vehicle
- struck while boarding or alighting vehicle
- any accident not classified above