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Injury crashes involving adult cyclists in South Australia, 2009-2018

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TITLE

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ABSTRACT

This report contains a straightforward statistical summary of adult (16+) cyclists injured in road crashes reported in South Australia for the period of 2009 to 2018 obtained from the Traffic Accident Reporting System (TARS). A set of tables based on various characteristics of the crashes is presented, detailing the times of the crashes, the places, the site details and circumstances, the demographics of the cyclists, the demographics of the other vehicles and their drivers, and the outcomes of the crashes. The tables are also grouped by age groups of the cyclists, the postcodes of the crashes, and by injury severity of the cyclist. The purpose of this report is to stimulate further insight and investigation into cyclist crashes.

KEYWORDS

Cyclist, Accident statistics, Data analysis

Summary

The purpose of this report is to provide a set of tables containing statistical summaries of the adult (16+) cyclists injured in road crashes reported in South Australia for the period of 2009-2018 obtained from the Traffic Accident Reporting System (TARS). The tables are arranged based on the characteristics of the crash: the time, the place, the site and circumstances, the demographics of the cyclist, the demographics of the other vehicle and its driver, and the outcomes of the crash. The tables are also aggregated by age groups of the cyclist, the postcode of the crash, and by injury severity of the cyclist.

Elementary analysis showed cyclist injuries due to crashes were more common in warmer months and the highest percentage of serious injury casualties occurred on Saturdays. Cyclist injuries occurred most frequently in the peak traffic hours and in the postcode range of 5000-5099 (inner Metropolitan Adelaide). The majority of cyclist injuries occurred on roads with a speed limit of 50 or 60 km/h, however serious injuries (including fatal) had an over representation in speed zones greater than 60 km/h. Males outnumbered females 3.7 to 1 for all injury cases and 5.3 to 1 for serious injury cases. Seriously injured (including fatal) cyclists comprised 12% of all injured cyclists.

Many of the features of the injured cyclist crashes deserve to be studied further, thus, the purpose of this report being to provide a basis for further insight and investigation.

Contents

1 Introduction

This report presents tabulations of characteristics of adult (16+) cyclists injured in crashes on South Australian roads for the period 2009-2018. The source of data is the Traffic Accident Reporting System (TARS), maintained by the Department for Infrastructure and Transport, which is based on police reports. The intention of this report is to provide a statistical summary of the cyclists injured in crashes, alongside cyclists seriously injured in crashes, allowing insight that may not be available elsewhere and stimulating further analyses. This report, being a straightforward presentation of numbers, has not included trends over the years or further detailed analysis of certain variables, but does provide a small amount of commentary on some obvious findings.

There are fewer than 100 serious-injury adult (16+) cyclist crashes reported to the police in South Australia per year. A reliable picture of the circumstances of such crashes cannot be seen with such a low number. Hence, this report gives the numbers over a 10-year period (2009-2018).

A previous report by Hutchinson, Kloeden and Long (2006) examined adult (16+) cyclists injured in crashes in South Australia for the period 2001-2004, and the choice of tabulations there has largely been reproduced in the present report. There was discussion of various aspects of the results in Hutchinson et al. (2007, 2008 a, 2008b, 2010).

The following report includes tables of cyclist injury crash statistics exploring different aspects of the crashes, some general comments on the overall results and a short concluding discussion.

2 Description of the tables

In South Australia as elsewhere, injury crashes reported to the police are known to be an underestimate of the total number, and more so for cyclists than for motor vehicle occupants. The South Australian Police (SAPOL) require all crashes that occur on South Australian public roads where a person was injured, or a vehicle was either towed or carried away, or the property damage exceeds an estimated value of $3000 to be reported within 24 hours of the crash occurrence. Consequently, crashes occurring on private roads, involving no injury, or not resulting in noteworthy bicycle damage may not be reported, resulting in an underestimate of low severity crashes. Nevertheless, it is thought that serious cyclist crashes usually involve a motor vehicle on a public road, and the TARS data probably gives quite a realistic picture of these.

For this report, casualties who are seriously or fatally injured are referred to as seriously injured, simply for brevity. In 2017 and 2018, a serious injury according to the Department for Infrastructure and Transport (DIT) annual road crash reports (DIT, 2017; 2018) was defined as “a person who sustains injuries and is admitted to hospital *for a minimum period of an overnight stay* as a result of a road crash and who does not die as a result of those injuries within 30 days of the crash.” However, from 2009 to 2016, a serious injury was defined as “a person who sustains injuries and is admitted to hospital as a result of a road crash and who does not die as a result of those injuries within 30 days of the crash”. Many of the procedures and definitions of terms used in this report are given in the DIT annual road crash reports.

A total of 3.7% of injured cyclists, and 3.4% of the seriously injured (hospital admission or fatal) cyclists were reported with an unknown age. As this report is about cyclists aged at least 16 years old, those of unknown age have been excluded.

This section presents tables of cyclists that were injured and recorded as being aged 16 years old and above. All tables are for the ten-year period 2009-2018.

The variables that are tabulated were chosen to match the original report (Hutchinson et al., 2006) and have been categorised according to the rows and columns of the tables.

The rows of the tables

The tables may be considered in six groups. The rows of the tables are based on the following categories:

- *Time.* Tables 2.1 to 2.3 refer to month, day of week, and hour of day.
- *Place.* Table 2.4 refers to postcode where the crash occurred. Table 2.5 refers to whether the postcode of residence of the cyclist is the same as the postcode of the crash.
- *Site and circumstances of crash.* Tables 2.6 to 2.9 refer to the road geometry at the crash (in particular, whether it was at a junction or not), the speed limit, whether the road was wet, and crash type.
- *Cyclist demographics.* Tables 2.10 to 2.12 refer to the sex, age, and postcode of residence of the cyclist.
- *The other vehicle and its driver.* Tables 2.13 to 2.16 refer to the sex of the driver of the vehicle that collided with the cyclist, the age of the driver, the type of vehicle, and the year of the vehicle. (For these tables, the crashes are restricted to those involving a single motor vehicle and a single bicycle.)

- *Outcome.* Table 2.17 shows the severity of injury to the cyclist, and 2.18 the hospital attended. (All hospitals that are named in Table 2.18 are in the Adelaide metropolitan area.)

The columns of the tables

The subclassifications of casualties were also chosen to match the original report, in respect to age groups and postcode groups of the crash locations.

- Age groups: 16-19, 20-59, and 60+ years old.
- Postcode groups: 5000-5099 roughly corresponding to inner Metropolitan Adelaide (a maximum distance of 16 km from the CBD), 5100-5199 roughly corresponding to outer Metropolitan Adelaide, and 5200-5999 corresponding to the rest of South Australia.

Each of the variables reported on have been separated into further groupings based on the severities of the crashes. Letters have been suffixed to table numbers to have the following meanings:

- a. Cyclists categorised by age group: all injury severities.
- b. Cyclists categorised by age group: fatally injured or hospital-admitted only.
- c. Cyclists categorised by postcode location of crash: all injury severities.
- d. Cyclists categorised by postcode location of crash: fatally injured or hospital-admitted only.

Each of the tables involving all injury severities has a total count of 4818 cases (apart from Tables 2.13 to 2.16, focussed on single cyclist versus single vehicle crashes), and each of the tables involving serious injury severities has a total count of 593 cases (apart from Tables 2.13 to 2.16).

Section 4 will draw attention to some findings that may be seen in the tables.

2.1 Time

Table 2.1a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by month of crash and age group of casualty

Month	Age group (years)			Total
	16-19	20-59	60+	
January	25	373	58	456
February	30	421	50	501
March	30	489	58	577
April	18	348	40	406
May	23	362	54	439
June	15	268	37	320
July	14	223	33	270
August	19	273	28	320
September	23	250	41	314
October	20	336	39	395
November	37	345	38	420
December	24	328	48	400
Total	278	4016	524	4818

Table 2.1b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by month of crash and age group of casualty

Month	Age group (years)			Total
	16-19	20-59	60+	
January	2	51	8	61
February	-	37	13	50
March	2	62	13	77
April	4	45	6	55
May	3	36	12	51
June	1	25	6	32
July	3	31	6	40
August	1	26	8	35
September	2	24	7	33
October	1	43	10	54
November	2	37	5	44
December	1	52	8	61
Total	22	469	102	593

Table 2.1c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by month of crash and crash postcode group

Month	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
January	339	74	43	456
February	423	54	24	501
March	475	68	34	577
April	314	59	33	406
May	364	51	24	439
June	259	36	25	320
July	217	34	19	270
August	260	43	17	320
September	256	37	21	314
October	319	47	29	395
November	341	54	25	420
December	321	45	34	400
Total	3888	602	328	4818

Table 2.1d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by month of crash and crash postcode group

Month	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
January	33	18	10	61
February	36	9	5	50
March	51	12	14	77
April	39	6	10	55
May	33	8	10	51
June	18	6	8	32
July	25	10	5	40
August	26	6	3	35
September	25	4	4	33
October	32	13	9	54
November	29	9	6	44
December	42	9	10	61
Total	389	110	94	593

Table 2.2a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by day of week of crash and age group of casualty

Day of week	Age group (years)			Total
	16-19	20-59	60+	
Monday	45	548	57	650
Tuesday	46	659	80	785
Wednesday	53	694	76	823
Thursday	47	667	96	810
Friday	31	553	58	642
Saturday	30	509	90	629
Sunday	26	386	67	479
Total	278	4016	524	4818

Table 2.2b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by day of week of crash and age group of casualty

Day of week	Age group (years)			Total
	16-19	20-59	60+	
Monday	3	48	11	62
Tuesday	3	62	16	81
Wednesday	2	66	15	83
Thursday	7	73	21	101
Friday	2	78	8	88
Saturday	3	78	14	95
Sunday	2	64	17	83
Total	22	469	102	593

Table 2.2c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by day of week of crash and crash postcode group

Day of week	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Monday	546	61	43	650
Tuesday	663	73	49	785
Wednesday	673	95	55	823
Thursday	676	92	42	810
Friday	532	73	37	642
Saturday	459	123	47	629
Sunday	339	85	55	479
Total	3888	602	328	4818

Table 2.2d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by day of week of crash and crash postcode group

Day of week	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Monday	43	9	10	62
Tuesday	55	11	15	81
Wednesday	57	9	17	83
Thursday	78	11	12	101
Friday	65	13	10	88
Saturday	57	29	9	95
Sunday	34	28	21	83
Total	389	110	94	593

Table 2.3a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by hour of day of crash and age group of casualty

Hour of day	Age group (years)			Total
	16-19	20-59	60+	
0	2	13	-	15
1	1	17	-	18
2	2	8	-	10
3	1	4	-	5
4	1	6	-	7
5	-	34	2	36
6	4	179	21	204
7	11	386	38	435
8	43	633	85	761
9	19	349	67	435
10	15	229	49	293
11	14	190	45	249
12	19	161	29	209
13	14	120	22	156
14	13	152	24	189
15	28	211	32	271
16	27	305	33	365
17	27	456	36	519
18	16	255	15	286
19	8	131	13	152
20	5	74	6	85
21	3	49	4	56
22	3	34	2	39
23	2	20	1	23
Total	278	4016	524	4818

Table 2.3b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by hour of day of crash and age group of casualty

Hour of day	Age group (years)			Total
	16-19	20-59	60+	
0	-	3	-	3
1	-	4	-	4
2	-	2	-	2
3	-	1	-	1
4	-	1	-	1
5	-	7	-	7
6	-	15	4	19
7	-	43	8	51
8	2	55	17	74
9	2	43	20	65
10	1	39	16	56
11	1	24	8	33
12	1	18	5	24
13	-	11	3	14
14	-	18	-	18
15	1	25	5	31
16	6	35	6	47
17	4	53	4	61
18	2	26	2	30
19	-	21	2	23
20	1	8	1	10
21	-	6	1	7
22	1	6	-	7
23	-	5	-	5
Total	22	469	102	593

Table 2.3c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by hour of day of crash and crash postcode group

Hour of day	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
0	11	3	1	15
1	11	4	3	18
2	7	2	1	10
3	2	2	1	5
4	6	-	1	7
5	28	7	1	36
6	164	29	11	204
7	365	48	22	435
8	655	67	39	761
9	333	58	44	435
10	208	56	29	293
11	181	45	23	249
12	173	23	13	209
13	112	29	15	156
14	146	32	11	189
15	209	34	28	271
16	296	45	24	365
17	461	37	21	519
18	242	32	12	286
19	118	24	10	152
20	67	12	6	85
21	49	2	5	56
22	27	8	4	39
23	17	3	3	23
Total	3888	602	328	4818

Table 2.3d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by hour of day of crash and crash postcode group

Hour of day	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
0	3	-	-	3
1	3	1	-	4
2	2	-	-	2
3	1	-	-	1
4	1	-	-	1
5	6	1	-	7
6	14	3	2	19
7	33	11	7	51
8	56	10	8	74
9	38	12	15	65
10	24	16	16	56
11	17	6	10	33
12	18	4	2	24
13	6	5	3	14
14	11	6	1	18
15	20	7	4	31
16	28	10	9	47
17	50	4	7	61
18	26	4	-	30
19	18	3	2	23
20	4	3	3	10
21	5	-	2	7
22	3	3	1	7
23	2	1	2	5
Total	389	110	94	593

2.2 Place

Table 2.4a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by crash postcode group and age group of casualty

Crash postcode group	Age group (years)			Total
	16-19	20-59	60+	
5000 (Adelaide city)	25	456	27	508
5001-5019 (NW)	24	450	70	544
5020-5039 (W)	34	603	88	725
5040-5059 (S)	29	495	75	599
5061-5079 (E)	63	949	88	1100
5080-5099 (NE)	28	346	38	412
5100-5199	49	483	70	602
5200-5999	26	234	68	328
Total	278	4016	524	4818

Table 2.4b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by crash postcode group and age group of casualty

Crash postcode group	Age group (years)			Total
	16-19	20-59	60+	
5000 (Adelaide city)	1	40	2	43
5001-5019 (NW)	-	46	10	56
5020-5039 (W)	3	57	18	78
5040-5059 (S)	2	52	13	67
5061-5079 (E)	7	77	15	99
5080-5099 (NE)	-	43	3	46
5100-5199	5	95	10	110
5200-5999	4	59	31	94
Total	22	469	102	593

Table 2.5a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by whether or not the cyclist lives in the crash postcode and age group of casualty

Locality of cyclist	Age group (years)			Total
	16-19	20-59	60+	
Cyclist lives in different postcode than crash	181	3078	347	3606
Cyclist lives in same postcode as crash	91	819	162	1072
Unknown	6	119	15	140
Total	278	4016	524	4818

Table 2.5b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by whether or not the cyclist lives in the crash postcode and age group of casualty

Locality of cyclist	Age group (years)			Total
	16-19	20-59	60+	
Cyclist lives in different postcode than crash	12	362	64	438
Cyclist lives in same postcode as crash	10	89	35	134
Unknown	-	18	3	21
Total	22	469	102	593

Table 2.5c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by whether or not the cyclist lives in the crash postcode and crash postcode group

Locality of cyclist	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Cyclist lives in different postcode than crash	3051	411	144	3606
Cyclist lives in same postcode as crash	723	173	176	1072
Unknown	114	18	8	140
Total	3888	602	328	4818

Table 2.5d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by whether or not the cyclist lives in the crash postcode and crash postcode group

Locality of cyclist	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Cyclist lives in different postcode than crash	302	90	46	438
Cyclist lives in same postcode as crash	70	17	47	134
Unknown	17	3	1	21
Total	389	110	94	593

2.3 Crash site and circumstances

Table 2.6a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by road geometry and age group of casualty

Road geometry	Age group (years)			Total
	16-19	20-59	60+	
Junction	161	2385	295	2841
Not at junction	116	1613	227	1956
Unknown	1	18	2	21
Total	278	4016	524	4818

Table 2.6b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by road geometry and age group of casualty

Road geometry	Age group (years)			Total
	16-19	20-59	60+	
Junction	10	226	56	292
Not at junction	12	239	44	295
Unknown	-	4	2	6
Total	22	469	102	593

Table 2.6c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by road geometry and crash postcode group

Road geometry	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Junction	2420	263	158	2841
Not at junction	1460	328	168	1956
Unknown	8	11	2	21
Total	3888	602	328	4818

Table 2.6d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by road geometry and crash postcode group

Road geometry	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Junction	223	31	38	292
Not at junction	164	77	54	295
Unknown	2	2	2	6
Total	389	110	94	593

Table 2.7a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by speed limit and age group of casualty

Speed limit (km/h)	Age group (years)			Total
	16-19	20-59	60+	
10	-	1	-	1
15	1	1	-	2
20	-	1	1	2
25	-	12	-	12
30	-	1	-	1
40	5	117	20	142
50	120	1529	201	1850
60	145	2058	248	2451
70	3	55	6	64
80	1	177	23	201
90	-	7	1	8
100	2	44	15	61
110	1	13	9	23
Total	278	4016	524	4818

Table 2.7b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by speed limit and age group of casualty

Speed limit (km/h)	Age group (years)			Total
	16-19	20-59	60+	
10	-	1	-	1
40	-	7	3	10
50	10	149	35	194
60	10	224	43	277
70	1	8	-	9
80	1	51	7	59
90	-	3	-	3
100	-	21	7	28
110	-	5	7	12
Total	22	469	102	593

Table 2.7c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by speed limit and crash postcode group

Speed limit (km/h)	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
10	-	-	1	1
15	1	1	-	2
20	1	-	1	2
25	9	2	1	12
30	1	-	-	1
40	135	6	1	142
50	1524	180	146	1850
60	2161	217	73	2451
70	36	27	1	64
80	15	140	46	201
90	4	3	1	8
100	-	25	36	61
110	1	1	21	23
Total	3888	602	328	4818

Table 2.7d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by speed limit and crash postcode group

Speed limit (km/h)	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
10	-	-	1	1
40	9	1	-	10
50	134	23	37	194
60	233	33	11	277
70	8	1	-	9
80	4	42	13	59
90	1	1	1	3
100	-	9	19	28
110	-	-	12	12
Total	389	110	94	593

Table 2.8a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by road wetness and age group of casualty

Road wetness	Age group (years)			Total
	16-19	20-59	60+	
Wet	23	268	38	329
Dry	255	3739	485	4479
Unknown	-	9	1	10
Total	278	4016	524	4818

Table 2.8b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by road wetness and age group of casualty

Road wetness	Age group (years)			Total
	16-19	20-59	60+	
Wet	2	34	6	42
Dry	20	431	95	546
Unknown	-	4	1	5
Total	22	469	102	593

Table 2.8c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by road wetness and crash postcode group

Road wetness	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Wet	258	47	24	329
Dry	3621	554	304	4479
Unknown	9	1	-	10
Total	3888	602	328	4818

Table 2.8d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by road wetness and crash postcode group

Road wetness	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Wet	21	12	9	42
Dry	363	98	85	546
Unknown	5	-	-	5
Total	389	110	94	593

Table 2.9a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by crash type and age group of casualty

Crash type	Age group (years)			Total
	16-19	20-59	60+	
Head on	2	40	3	45
Hit animal	-	25	4	29
Hit fixed object	12	141	31	184
Hit object on road	1	26	10	37
Hit parked vehicle	24	305	30	359
Hit pedestrian	1	20	5	26
Left road - out of control	-	2	-	2
Rear end	17	212	38	267
Right angle	102	1275	182	1559
Right turn	42	583	37	662
Roll over	25	465	84	574
Side swipe	51	892	98	1041
Other	1	30	2	33
Total	278	4016	524	4818

Table 2.9b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by crash type and age group of casualty

Crash type	Age group (years)			Total
	16-19	20-59	60+	
Head on	1	15	3	19
Hit animal	-	7	1	8
Hit fixed object	3	33	6	42
Hit object on road	1	4	4	9
Hit parked vehicle	5	23	5	33
Hit pedestrian	-	1	-	1
Left road - out of control	-	1	-	1
Rear end	-	40	11	51
Right angle	6	97	29	132
Right turn	2	72	6	80
Roll over	2	89	18	109
Side swipe	2	84	19	105
Other	-	3	-	3
Total	22	469	102	593

Table 2.9c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by crash type and crash postcode group

Crash type	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Head on	25	15	5	45
Hit animal	8	17	4	29
Hit fixed object	112	59	13	184
Hit object on road	31	4	2	37
Hit parked vehicle	325	13	21	359
Hit pedestrian	24	1	1	26
Left road - out of control	1	-	1	2
Rear end	191	42	34	267
Right angle	1266	184	109	1559
Right turn	603	38	21	662
Roll over	372	140	62	574
Side swipe	906	80	55	1041
Other	24	9	-	33
Total	3888	602	328	4818

Table 2.9d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by crash type and crash postcode group

Crash type	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Head on	7	11	1	19
Hit animal	1	4	3	8
Hit fixed object	22	17	3	42
Hit object on road	6	2	1	9
Hit parked vehicle	29	2	2	33
Hit pedestrian	1	-	-	1
Left road - out of control	-	-	1	1
Rear end	22	11	18	51
Right angle	98	10	24	132
Right turn	68	8	4	80
Roll over	56	32	21	109
Side swipe	78	11	16	105
Other	1	2	-	3
Total	389	110	94	593

2.4 Cyclist demographics

Table 2.10a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist sex and age group of casualty

Cyclist sex	Age group (years)			Total
	16-19	20-59	60+	
Male	219	3127	445	3791
Female	59	888	79	1026
Unknown	-	1	-	1
Total	278	4016	524	4818

Table 2.10b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist sex and age group of casualty

Cyclist sex	Age group (years)			Total
	16-19	20-59	60+	
Male	18	388	93	499
Female	4	81	9	94
Total	22	469	102	593

Table 2.10c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist sex and crash postcode group

Cyclist sex	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Male	3043	496	252	3791
Female	844	106	76	1026
Unknown	1	-	-	1
Total	3888	602	328	4818

Table 2.10d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist sex and crash postcode group

Cyclist sex	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Male	326	96	77	499
Female	63	14	17	94
Total	389	110	94	593

Table 2.11c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist age and crash postcode group

Cyclist age	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
16	48	13	6	67
17	41	13	9	63
18	40	15	6	61
19	74	8	5	87
20	71	9	7	87
21	74	3	1	78
22	84	7	3	94
23	85	5	3	93
24	99	8	3	110
25	95	2	1	98
26	80	12	2	94
27	87	8	7	102
28	85	10	4	99
29	97	8	5	110
30	104	15	4	123
31	88	9	5	102
32	85	10	7	102
33	87	12	4	103
34	82	12	5	99
35	67	20	7	94
36	96	11	6	113
37	69	13	3	85
38	79	17	2	98
39	82	17	8	107
40	86	14	11	111
41	99	19	8	126
42	110	17	7	134
43	83	11	11	105
44	82	17	7	106
45	100	18	8	126
46	87	13	8	108
47	81	18	10	109
48	76	10	9	95
49	77	15	11	103
50	70	23	6	99
51	111	13	6	130
52	79	14	4	97
53	76	19	5	100
54	77	11	6	94
55	75	11	3	89
56	85	7	6	98
57	47	10	7	64
58	50	9	7	66
59	52	6	7	65
60	53	6	5	64
61	37	4	6	47
62	37	9	5	51
63	29	10	7	46
64	19	7	5	31
65	20	5	5	30
66	24	6	4	34

67	15	1	3	19
68	15	3	7	25
69	17	6	-	23
70	19	3	3	25
71	10	3	1	14
72	14	1	1	16
73	4	2	4	10
74	7	1	-	8
75	8	-	-	8
76	7	-	1	8
77	3	-	2	5
78	11	-	-	11
79	4	-	2	6
80	3	-	2	5
81	2	1	1	4
82	5	-	-	5
83	7	1	2	10
84	6	-	-	6
86	3	-	-	3
87	2	-	1	3
88	2	-	-	2
89	1	-	-	1
90	1	-	-	1
93	-	-	1	1
94	1	-	-	1
97	-	1	-	1
Total	3888	602	328	4818

Table 2.11d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist age and crash postcode group

Cyclist age	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
16	2	3	-	5
17	5	1	1	7
18	1	-	1	2
19	5	1	2	8
20	5	1	2	8
21	3	1	-	4
22	10	1	-	11
23	5	2	-	7
24	12	2	-	14
25	7	1	-	8
26	7	-	-	7
27	2	1	2	5
28	6	1	3	10
29	8	3	-	11
30	7	1	-	8
31	5	-	-	5
32	11	2	2	15
33	3	3	1	7
34	11	1	-	12
35	5	4	-	9
36	10	-	2	12
37	6	1	-	7

38	8	1	-	9
39	10	-	1	11
40	8	3	5	16
41	11	1	3	15
42	14	3	3	20
43	9	5	4	18
44	6	3	1	10
45	7	3	2	12
46	6	3	3	12
47	16	5	2	23
48	9	3	2	14
49	7	5	3	15
50	7	5	1	13
51	20	6	3	29
52	11	5	3	19
53	5	5	1	11
54	9	4	1	14
55	11	4	-	15
56	8	2	1	11
57	3	1	3	7
58	3	2	1	6
59	4	1	4	9
60	5	1	1	7
61	5	-	2	7
62	4	1	5	10
63	4	1	3	8
64	4	1	2	7
65	2	-	2	4
66	3	2	2	7
67	2	-	2	4
68	3	1	3	7
69	4	-	-	4
70	2	2	1	5
71	3	-	-	3
72	3	-	-	3
73	1	1	2	4
75	2	-	-	2
77	1	-	2	3
78	3	-	-	3
79	2	-	1	3
80	-	-	1	1
82	3	-	-	3
83	2	-	-	2
84	1	-	-	1
87	-	-	1	1
88	2	-	-	2
93	-	-	1	1
Total	389	110	94	593

Table 2.12a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist home postcode group and age group of casualty

Cyclist home postcode group	Age group (years)			Total
	16-19	20-59	60+	
5000-5099	174	3061	364	3599
5100-5199	58	547	70	675
5200-5999	39	233	64	336
Other/ Unknown	7	175	26	208
Total	278	4016	524	4818

Table 2.12b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist home postcode group and age group of casualty

Cyclist home postcode group	Age group (years)			Total
	16-19	20-59	60+	
5000-5099	13	317	61	391
5100-5199	4	73	8	85
5200-5999	5	47	28	80
Other/ Unknown	-	32	5	37
Total	22	469	102	593

Table 2.12c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist home postcode group and crash postcode group

Cyclist home postcode group	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
5000-5099	3383	177	39	3599
5100-5199	283	368	24	675
5200-5999	72	21	243	336
Other/ Unknown	150	36	22	208
Total	3888	602	328	4818

Table 2.12d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist home postcode group and crash postcode group

Cyclist home postcode group	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
5000-5099	331	46	14	391
5100-5199	29	52	4	85
5200-5999	6	5	69	80
Other/ Unknown	23	7	7	37
Total	389	110	94	593

2.5 The other vehicle and its driver

Table 2.13a
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver sex and cyclist age group

Sex of motor vehicle driver	Age group (years)			Total
	16-19	20-59	60+	
Male	97	1562	159	1818
Female	89	1096	136	1321
Unknown	17	195	23	235
Total	203	2853	318	3374

Note: Sex of *motor vehicle driver* tabulated with age of cyclist.

Table 2.13b
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver sex and cyclist age group

Sex of motor vehicle driver	Age group (years)			Total
	16-19	20-59	60+	
Male	6	170	35	211
Female	5	89	18	112
Unknown		22	4	26
Total	11	281	57	349

Note: Sex of *motor vehicle driver* tabulated with age of cyclist.

Table 2.13c
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver sex and crash postcode group

Sex of motor vehicle driver	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Male	1536	181	101	1818
Female	1124	126	71	1321
Unknown	187	32	16	235
Total	2847	339	188	3374

Note: Sex of *motor vehicle driver* tabulated with crash postcode.

Table 2.13d
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver sex and crash postcode group

Sex of motor vehicle driver	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Male	150	30	31	211
Female	84	13	15	112
Unknown	19	4	3	26
Total	253	47	49	349

Note: Sex of *motor vehicle driver* tabulated with crash postcode.

Table 2.14a
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver age and cyclist age group

Age group of motor vehicle driver	Age group (years)			Total
	16-19	20-59	60+	
16-19	6	126	19	151
20-29	36	508	55	599
30-39	24	455	49	528
40-49	35	477	49	561
50-59	19	387	57	463
60-69	27	301	25	353
70-79	11	147	17	175
80-89	4	56	10	70
90-99	-	5	-	5
Unknown	41	391	37	469
Total	203	2853	318	3374

Note: Age group of *motor vehicle driver* tabulated with age of cyclist.

Table 2.14b
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver age and cyclist age group

Age group of motor vehicle driver	Age group (years)			Total
	16-19	20-59	60+	
16-19	2	20	5	27
20-29	2	53	7	62
30-39	1	43	9	53
40-49	2	50	8	60
50-59	-	29	11	40
60-69	3	30	8	41
70-79	1	18	3	22
80-89	-	5	1	6
90-99	-	1	-	1
Unknown	-	32	5	37
Total	11	281	57	349

Note: Age group of *motor vehicle driver* tabulated with age of cyclist.

Table 2.14c
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver age and crash postcode group

Age group of motor vehicle driver	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
16-19	119	21	11	151
20-29	507	65	27	599
30-39	464	37	27	528
40-49	485	48	28	561
50-59	397	41	25	463
60-69	296	33	24	353
70-79	143	21	11	175
80-89	56	8	6	70
90-99	2	1	2	5
Unknown	378	64	27	469
Total	2847	339	188	3374

Note: Age group of *motor vehicle driver* tabulated with crash postcode.

Table 2.14d
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by driver age and crash postcode group

Age group of motor vehicle driver	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
16-19	16	7	4	27
20-29	51	4	7	62
30-39	42	6	5	53
40-49	45	6	9	60
50-59	31	4	5	40
60-69	26	6	9	41
70-79	13	6	3	22
80-89	4	-	2	6
90-99	-	-	1	1
Unknown	25	8	4	37
Total	253	47	49	349

Note: Age group of *motor vehicle driver* tabulated with crash postcode.

Table 2.15a
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by type of motor vehicle and cyclist age group

Type of motor vehicle	Age group (years)			Total
	16-19	20-59	60+	
Car (and derivatives)	192	2681	296	3169
Motorcycles	-	18	-	18
Trucks and buses	4	67	11	82
Other	7	87	11	105
Total	203	2853	318	3374

Table 2.15b
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by type of motor vehicle and cyclist age group

Type of motor vehicle	Age group (years)			Total
	16-19	20-59	60+	
Car (and derivatives)	10	253	48	311
Motorcycles	-	2	-	2
Trucks and buses	1	13	6	20
Other	-	13	3	16
Total	11	281	57	349

Table 2.15c
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by type of motor vehicle and crash postcode group

Type of motor vehicle	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Car (and derivatives)	2674	318	177	3169
Motorcycles	13	5	-	18
Trucks and buses	74	3	5	82
Other	86	13	6	105
Total	2847	339	188	3374

Table 2.15d
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by type of motor vehicle and crash postcode group

Type of motor vehicle	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Car (and derivatives)	226	41	44	311
Motorcycles	-	2	-	2
Trucks and buses	16	1	3	20
Other	11	3	2	16
Total	253	47	49	349

Table 2.16a
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by year of motor vehicle and cyclist age group

Year of motor vehicle	Age group (years)			Total
	16-19	20-59	60+	
1950-1979	-	15	1	16
1980-1989	4	73	15	92
1990-1999	40	527	50	617
2000-2009	82	1335	149	1566
2010-2018	39	561	70	670
Unknown	38	342	33	413
Total	203	2853	318	3374

Table 2.16b
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by year of motor vehicle and cyclist age group

Year of motor vehicle	Age group (years)			Total
	16-19	20-59	60+	
1950-1979	-	2	1	3
1980-1989	-	10	4	14
1990-1999	4	55	7	66
2000-2009	5	136	29	170
2010-2018	2	44	10	56
Unknown	-	34	6	40
Total	11	281	57	349

Table 2.16c
Cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by year of motor vehicle and crash postcode group

Year of motor vehicle	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
1950-1979	14	1	1	16
1980-1989	72	11	9	92
1990-1999	500	78	39	617
2000-2009	1351	138	77	1566
2010-2018	588	55	27	670
Unknown	322	56	35	413
Total	2847	339	188	3374

Table 2.16d
Seriously injured cyclist casualties aged 16+ in South Australia 2009-2018:
Number in single motor vehicle vs single bicycle crashes, by year of motor vehicle and crash postcode group

Year of motor vehicle	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
1950-1979	2	-	1	3
1980-1989	11	1	2	14
1990-1999	43	11	12	66
2000-2009	128	20	22	170
2010-2018	43	7	6	56
Unknown	26	8	6	40
Total	253	47	49	349

2.6 Outcome

Table 2.17a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist injury severity and age group of casualty

Cyclist injury severity	Age group (years)			Total
	16-19	20-59	60+	
Private doctor	63	1185	99	1347
Treated at hospital	193	2362	323	2878
Admitted to hospital	22	446	86	554
Fatal	-	23	16	39
Total	278	4016	524	4818

Table 2.17c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by cyclist injury severity and crash postcode group

Cyclist injury severity	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Private doctor	1207	93	47	1347
Treated at hospital	2292	399	187	2878
Admitted to hospital	375	103	76	554
Fatal	14	7	18	39
Total	3888	602	328	4818

Table 2.18a
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by treating hospital and age group of casualty

Treating hospital	Age group (years)			Total
	16-19	20-59	60+	
Flinders Medical Centre	38	485	73	596
Lyell McEwin Hospital	13	127	13	153
Modbury Public Hospital	6	90	12	108
Noarlunga Community Hospital	9	45	13	67
Queen Elizabeth Hospital	16	276	61	353
Royal Adelaide Hospital	68	1385	154	1607
Wakefield Hospital	1	51	12	64
Women's & Children's Hospital	27	4	-	31
Other	24	159	46	229
Unknown	76	1394	140	1610
Total	278	4016	524	4818

Note: The Royal Adelaide Hospital changed location during the period.

Table 2.18b
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by treating hospital and age group of casualty

Treating hospital	Age group (years)			Total
	16-19	20-59	60+	
Flinders Medical Centre	2	81	14	97
Lyell McEwin Hospital	3	18	2	23
Modbury Public Hospital	-	7	-	7
Noarlunga Community Hospital	-	3	1	4
Queen Elizabeth Hospital	1	33	11	45
Royal Adelaide Hospital	7	262	38	307
Wakefield Hospital	-	6	4	10
Women's & Children's Hospital	5	1	-	6
Other	4	27	17	48
Unknown	-	31	15	46
Total	22	469	102	593

Note: The Royal Adelaide Hospital changed location during the period.

Table 2.18c
Number of cyclist casualties aged 16+ in South Australia 2009-2018, by treating hospital and crash postcode group

Treating hospital	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Flinders Medical Centre	437	138	21	596
Lyell McEwin Hospital	21	121	11	153
Modbury Public Hospital	95	8	5	108
Noarlunga Community Hospital	7	58	2	67
Queen Elizabeth Hospital	352	-	1	353
Royal Adelaide Hospital	1429	132	46	1607
Wakefield Hospital	60	3	1	64
Women's & Children's Hospital	26	4	1	31
Other	45	14	170	229
Unknown	1416	124	70	1610
Total	3888	602	328	4818

Note: The Royal Adelaide Hospital changed location during the period.

Table 2.18d
Number of seriously injured cyclist casualties aged 16+ in South Australia 2009-2018, by treating hospital and crash postcode group

Treating hospital	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Flinders Medical Centre	56	32	9	97
Lyell McEwin Hospital	1	17	5	23
Modbury Public Hospital	6	1	-	7
Noarlunga Community Hospital	2	2	-	4
Queen Elizabeth Hospital	44	-	1	45
Royal Adelaide Hospital	242	47	18	307
Wakefield Hospital	8	1	1	10
Women's & Children's Hospital	4	2	-	6
Other	6	-	42	48
Unknown	20	8	18	46
Total	389	110	94	593

Note: The Royal Adelaide Hospital changed location during the period.

3 Summary of findings from the tables

Time of crash (month, day of week, hour of day)

Cyclist injuries were higher in the warmer months than the cooler months (Table 2.1). There tended to be fewer casualties per day on weekends than on weekdays (Table 2.2), however crashes occurring on Saturdays had the highest percentage of serious injury cases (17%). The times of day when casualties occurred most frequently included the hours 7:00 am to 10:59 am and 3:00 pm to 6:59 pm, presumably when most people were travelling to or from work (Table 2.3). In the inner suburbs of Adelaide (postcodes 5000-5099) the hour of 8 am contained the greatest number of injury casualties and serious injury casualties, respectively containing 42% and 12% more than the second largest hour of 5 pm. In the same suburbs, the morning commute hours of 7 am, 8 am and 9 am contained 35% of the total injury casualties, and 33% of serious injury casualties, whereas the afternoon commute hours of 5 pm, 6 pm and 7 pm contained 21% of the total injury casualties, and 24% of serious injury casualties (Table 2.3c,d).

Place (postcode)

Postcode groups 5000-5099, 5100-5199, and 5200-5999 accounted for 81%, 12% and 7% of casualties respectively (Table 2.4a). For seriously injured cyclists, the postcode groups accounted for 66%, 19% and 16% respectively (Table 2.4b). The crash location postcodes of close to three quarters of cyclist casualties were different to which the cyclists lived in (Table 2.5).

Crash site and circumstances

Cyclists injuries occurred more often at junctions than not with a 59% to 41% split (Table 2.6a). However, serious injury cyclists casualties had an almost equal count for junctions and not at junctions with a 49% to 50% split (Table 2.6b). The majority of casualties, 89%, occurred on roads with speed limits of 50 or 60 km/h. However, for serious injury casualties the same speed limited roads accounted for 79% of crashes. Roads with speed limits above 60 km/h accounted for 7% of all injured cyclists and 19% of seriously injured cyclists (Table 2.7). Road wetness showed similar results between injury casualties and serious injury casualties with proportions of 93% and 92% occurring on dry roads respectively (Table 2.8). Injury casualties categorised into “right angle” and “side swipe” crash types were most common, comprising 54% of the total (Table 2.9); however, some cyclist crashes are complicated and do not easily fall into the TARS categories as they are more appropriate for categorising motor vehicle crashes.

Cyclist demographics

Male cyclists outnumbered females about 3.7 to 1 for all injury casualties and 5.3 to 1 for serious injury casualties (Table 2.10). Table 2.11 allows for comparisons of age groupings if desired.

The other vehicle and its driver

It should be noted again that the casualties included from Table 2.13 to Table 2.16 exclusively reported crashes involving a single motor vehicle and single bicycle. The numbers of casualties are consequently fewer in these tables than in other tables. For these casualties, the other vehicle type of cars and car derivatives made up 94% of the total injured cyclists and 89% of the seriously injured cyclists (Table 2.15). Males were more likely to be the drivers of the other vehicles (Table 2.13), and the 20 to 29 years old age bracket had the highest proportion of other vehicle drivers (Table 2.14).

Outcome

Fatalities comprised 1% of the total casualties. Casualties recorded as admitted to hospital (overnight stay in a hospital) comprised 11%, and casualties recorded as treated at hospital (less than an overnight stay in a hospital) comprised 60%. Those treated but not at a hospital comprised 28% of all injury cases (Table 2.17).

4 Discussion

This report has revealed many interesting characteristics of adult (16+) injured and serious injured cyclists from the last decade. Many of these findings deserve to be studied further and in greater detail. The purpose of the present report is not to do that, but to simply present data.

The TARS dataset from which this report is based on has strengths and weaknesses. The major strengths include the sheer mass of data available and the consistency of the data collected. This allows for statistical summaries of crash variables, such as presented in this report. The limitations surrounding the TARS dataset include the probable underreporting of low severity crashes as mentioned previously.

Resource intensive methods of data collection include in-depth crash investigation and detailed coroner file case reviews. These alternative methods provide a greater understanding of each individual crash and take into consideration factors that may not be applicable to a dataset like TARS. Some examples include more knowledge of the exact travel paths of the cyclists, any obstacles that either participant was avoiding, the visibility of the cyclists, any dynamic visual obstructions affecting any participants, and the actions of the uninvolved traffic. Both types of data sets are essential to understanding cyclist crashes. Fatal crashes, for example, may include many atypical crash types that should only be investigated using in-depth data, accounting for any unusual factors contributing to the crash.

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