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Injury crashes involving child cyclists in South Australia 2009-2018

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Injury crashes involving child cyclists, South Australia, 2009-2018

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ABSTRACT

This report contains a straightforward statistical summary of child (aged under 16 years old) cyclists injured in road crashes reported in South Australia for the period of 2009-2018 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 child cyclist crashes.

KEYWORDS

Child cyclist, Accident statistics, Data analysis

Summary

The purpose of this report is to provide a set of tables containing statistical summaries of the child (aged under 16 years old) 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 child cyclist injuries due to crashes were more common in Autumn and Spring and the highest percentage of serious injury casualties occurred on Mondays. Child cyclist injuries occurred most frequently in the start and end of normal school hours and in the postcode range of 5000-5099 (inner Metropolitan Adelaide). The majority of child 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 zones with a speed limit of over 60 km/h. Males outnumbered females 4.8 to 1 for all injury cases and 5.1 to 1 for serious injury cases. Seriously injured (including fatal) child cyclists comprised 13% of all injured cyclists.

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

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1 Introduction

This report presents tabulations of characteristics of child (aged under 16 years old) 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 child cyclists injured in crashes, alongside child 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 10 serious-injury child (aged under 16 years old) 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 child (aged under 16 years old) and 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 child 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 under 16 years old, those of unknown age have been excluded.

This section presents tables of cyclists that were injured and recorded as being aged under 16 years old. 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 an intersection 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: 5-7, 8-12, and 13-15 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 327 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 43 cases (apart from Tables 2.13 to 2.16).

Section 3 will draw attention to some findings that may be seen in the tables.

2.1 Time

Table 2.1a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by month of crash and age group of casualty

Month	Age group (years)			Total
	5-7	8-12	13-15	
January	1	15	13	29
February	-	8	15	23
March	2	13	21	36
April	1	12	12	25
May	3	13	16	32
June	-	8	8	16
July	1	6	6	13
August	1	12	14	27
September	1	12	11	24
October	2	10	28	40
November	2	15	19	36
December	2	7	17	26
Total	16	131	180	327

Table 2.1b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by month of crash and age group of casualty

Month	Age group (years)			Total
	5-7	8-12	13-15	
January	-	1	3	4
February	-	-	3	3
March	1	-	5	6
April	-	2	3	5
May	-	2	3	5
June	-	1	-	1
July	-	1	2	3
August	-	1	2	3
September	-	1	2	3
October	-	1	5	6
November	-	1	1	2
December	1	1	-	2
Total	2	12	29	43

Table 2.1c
Number of cyclist casualties aged 5-15 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	15	6	8	29
February	14	5	4	23
March	20	9	7	36
April	9	8	8	25
May	12	10	10	32
June	12	2	2	16
July	4	-	9	13
August	14	8	5	27
September	17	3	4	24
October	27	11	2	40
November	22	7	7	36
December	12	7	7	26
Total	178	76	73	327

Table 2.1d
Number of seriously injured cyclist casualties aged 5-15 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	1	3	-	4
February	1	2	-	3
March	3	-	3	6
April	1	2	2	5
May	3	-	2	5
June	-	1	-	1
July	-	-	3	3
August	2	1	-	3
September	2	-	1	3
October	4	2	-	6
November	-	2	-	2
December	-	-	2	2
Total	17	13	13	43

Table 2.2a
 Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
 by day of week of crash and age group of casualty

Day of week	Age group (years)			Total
	5-7	8-12	13-15	
Monday	4	32	34	70
Tuesday	3	16	27	46
Wednesday	2	14	26	42
Thursday	1	17	37	55
Friday	2	21	23	46
Saturday	2	15	19	36
Sunday	2	16	14	32
Total	16	131	180	327

Table 2.2b
 Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
 by day of week of crash and age group of casualty

Day of week	Age group (years)			Total
	5-7	8-12	13-15	
Monday	1	6	6	13
Tuesday	1	-	2	3
Wednesday	-	-	5	5
Thursday	-	2	6	8
Friday	-	-	3	3
Saturday	-	3	3	6
Sunday	-	1	4	5
Total	2	12	29	43

Table 2.2c
 Number of cyclist casualties aged 5-15 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	35	17	18	70
Tuesday	23	12	11	46
Wednesday	26	12	4	42
Thursday	33	11	11	55
Friday	26	8	12	46
Saturday	21	6	9	36
Sunday	14	10	8	32
Total	178	76	73	327

Table 2.2d
 Number of seriously injured cyclist casualties aged 5-15 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	2	3	8	13
Tuesday	1	1	1	3
Wednesday	2	3	-	5
Thursday	3	4	1	8
Friday	2	-	1	3
Saturday	4	1	1	6
Sunday	3	1	1	5
Total	17	13	13	43

Table 2.3a
 Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
 by hour of day of crash and age group of casualty

Hour of day	Age group (years)			Total
	5-7	8-12	13-15	
1	-	1	-	1
6	-	-	3	3
7	-	-	6	6
8	1	29	39	69
9	-	2	7	9
10	-	4	3	7
11	1	8	8	17
12	-	3	6	9
13	2	7	6	15
14	1	6	7	14
15	3	27	26	56
16	4	14	20	38
17	2	16	25	43
18	1	7	11	19
19	-	6	7	13
20	-	-	2	2
21	-	-	1	1
22	1	1	2	4
23	-	-	1	1
Total	16	131	180	327

Table 2.3b
 Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
 by hour of day of crash and age group of casualty

Hour of day	Age group (years)			Total
	5-7	8-12	13-15	
1	-	1	-	1
6	-	-	1	1
7	-	-	1	1
8	-	2	3	5
9	-	-	1	1
10	-	-	1	1
12	-	-	2	2
13	-	-	1	1
14	-	-	2	2
15	-	2	1	3
16	1	4	4	9
17	-	2	8	10
18	-	-	1	1
19	-	1	1	2
22	1	-	1	2
23	-	-	1	1
Total	2	12	29	43

Table 2.3c
 Number of cyclist casualties aged 5-15 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	
1	1	-	-	1
6	3	-	-	3
7	4	1	1	6
8	48	13	8	69
9	5	3	1	9
10	2	2	3	7
11	11	1	5	17
12	5	2	2	9
13	6	4	5	15
14	8	4	2	14
15	22	21	13	56
16	18	10	10	38
17	25	7	11	43
18	9	3	7	19
19	7	2	4	13
20	-	2	-	2
21	1	-	-	1
22	2	1	1	4
23	1	-	-	1
Total	178	76	73	327

Table 2.3d
 Number of seriously injured cyclist casualties aged 5-15 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	
1	1	-	-	1
6	1	-	-	1
7	1	-	-	1
8	2	1	2	5
9	1	-	-	1
10	-	1	-	1
12	1	1	-	2
13	-	-	1	1
14	1	1	-	2
15	-	3	-	3
16	2	3	4	9
17	4	2	4	10
18	1	-	-	1
19	1	-	1	2
22	-	1	1	2
23	1	-	-	1
Total	17	13	13	43

2.2 Place

Table 2.4a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by crash postcode group and age group of casualty

Crash postcode group	Age group (years)			Total
	5-7	8-12	13-15	
5000 (Adelaide city)	-	1	4	5
5001-5019 (NW)	2	7	12	21
5020-5039 (W)	-	18	14	32
5040-5059 (S)	1	11	22	34
5061-5079 (E)	-	24	28	52
5080-5099 (NE)	1	10	23	34
5100-5199	5	24	47	76
5200-5999	7	36	30	73
Total	16	131	180	327

Table 2.4b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by crash postcode group and age group of casualty

Crash postcode group	Age group (years)			Total
	5-7	8-12	13-15	
5001-5019 (NW)	-	-	3	3
5020-5039 (W)	-	-	1	1
5040-5059 (S)	-	1	2	3
5061-5079 (E)	-	1	5	6
5080-5099 (NE)	-	-	4	4
5100-5199	-	4	9	13
5200-5999	2	6	5	13
Total	2	12	29	43

Table 2.5a
 Number of cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Cyclist lives in different postcode than crash	3	42	90	135
Cyclist lives in same postcode as crash	13	81	87	181
Unknown	-	8	3	11
Total	16	131	180	327

Table 2.5b
 Number of seriously injured cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Cyclist lives in different postcode than crash	1	1	13	15
Cyclist lives in same postcode as crash	1	10	15	26
Unknown	-	1	1	2
Total	2	12	29	43

Table 2.5c
 Number of cyclist casualties aged 5-15 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	95	28	12	135
Cyclist lives in same postcode as crash	78	44	59	181
Unknown	5	4	2	11
Total	178	76	73	327

Table 2.5d
 Number of seriously injured cyclist casualties aged 5-15 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	8	5	2	15
Cyclist lives in same postcode as crash	9	6	11	26
Unknown	-	2	-	2
Total	17	13	13	43

2.3 Crash site and circumstances

Table 2.6a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by road geometry and age group of casualty

Road geometry	Age group (years)			Total
	5-7	8-12	13-15	
Intersection	6	61	88	155
Not at intersection	10	70	91	171
Unknown	-	-	1	1
Total	16	131	180	327

Table 2.6b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by road geometry and age group of casualty

Road geometry	Age group (years)			Total
	5-7	8-12	13-15	
Intersection	-	8	13	21
Not at intersection	2	4	16	22
Total	2	12	29	43

Table 2.6c
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by road geometry and crash postcode group

Road geometry	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Intersection	90	33	32	155
Not at intersection	87	43	41	171
Unknown	1	-	-	1
Total	178	76	73	327

Table 2.6d
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by road geometry and crash postcode group

Road geometry	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
Intersection	12	3	6	21
Not at intersection	5	10	7	22
Total	17	13	13	43

Table 2.7a
 Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
 by speed limit and age group of casualty

Speed limit (km/h)	Age group (years)			Total
	5-7	8-12	13-15	
40	-	3	7	10
50	12	81	88	181
60	4	43	74	121
70	-	-	2	2
80	-	2	5	7
100	-	2	3	5
110	-	-	1	1
Total	16	131	180	327

Table 2.7b
 Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
 by speed limit and age group of casualty

Speed limit (km/h)	Age group (years)			Total
	5-7	8-12	13-15	
50	1	5	14	20
60	1	5	8	14
70	-	-	1	1
80	-	2	3	5
100	-	-	2	2
110	-	-	1	1
Total	2	12	29	43

Table 2.7c
 Number of cyclist casualties aged 5-15 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	
40	9	-	1	10
50	90	37	54	181
60	77	33	11	121
70	2	-	-	2
80	-	5	2	7
100	-	1	4	5
110	-	-	1	1
Total	178	76	73	327

Table 2.7d
 Number of seriously injured cyclist casualties aged 5-15 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	
50	10	6	4	20
60	6	3	5	14
70	1	-	-	1
80	-	3	2	5
100	-	1	1	2
110	-	-	1	1
Total	17	13	13	43

Table 2.8a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by road wetness and age group of casualty

Road wetness	Age group (years)			Total
	5-7	8-12	13-15	
Wet	-	7	7	14
Dry	16	124	173	313
Total	16	131	180	327

Table 2.8b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by road wetness and age group of casualty

Road wetness	Age group (years)			Total
	5-7	8-12	13-15	
Wet	-	1	-	1
Dry	2	11	29	42
Total	2	12	29	43

Table 2.8c
Number of cyclist casualties aged 5-15 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	7	3	4	14
Dry	171	73	69	313
Total	178	76	73	327

Table 2.8d
Number of seriously injured cyclist casualties aged 5-15 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	-	1	-	1
Dry	17	12	13	42
Total	17	13	13	43

Table 2.9a
 Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
 by crash type and age group of casualty

Crash type	Age group (years)			Total
	5-7	8-12	13-15	
Head on	1	2	6	9
Hit fixed object	-	5	7	12
Hit object on road	-	-	2	2
Hit parked vehicle	-	2	9	11
Left road - out of control	-	-	1	1
Rear end	1	4	7	12
Right angle	11	91	87	189
Right turn	1	6	11	18
Roll over	1	14	20	35
Side swipe	1	6	30	37
Other	-	1	-	1
Total	16	131	180	327

Table 2.9b
 Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
 by crash type and age group of casualty

Crash type	Age group (years)			Total
	5-7	8-12	13-15	
Head on	-	-	1	1
Hit fixed object	-	1	1	2
Hit object on road	-	-	1	1
Hit parked vehicle	-	-	1	1
Rear end	1	-	1	2
Right angle	1	6	11	18
Right turn	-	2	5	7
Roll over	-	1	4	5
Side swipe	-	1	4	5
Other	-	1	-	1
Total	2	12	29	43

Table 2.9c
Number of cyclist casualties aged 5-15 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	4	2	3	9
Hit fixed object	6	4	2	12
Hit object on road	1	1	-	2
Hit parked vehicle	8	-	3	11
Left road - out of control	-	1	-	1
Rear end	5	4	3	12
Right angle	103	40	46	189
Right turn	12	6	-	18
Roll over	15	12	8	35
Side swipe	24	6	7	37
Other	-	-	1	1
Total	178	76	73	327

Table 2.9d
Number of seriously injured cyclist casualties aged 5-15 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	-	1	-	1
Hit fixed object	-	-	2	2
Hit object on road	-	1	-	1
Hit parked vehicle	1	-	-	1
Rear end	1	-	1	2
Right angle	8	4	6	18
Right turn	5	2	-	7
Roll over	1	4	-	5
Side swipe	1	1	3	5
Other	-	-	1	1
Total	17	13	13	43

2.4 Child cyclist demographics

Table 2.10a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by cyclist sex and age group of casualty

Cyclist sex	Age group (years)			Total
	5-7	8-12	13-15	
Male	14	104	153	271
Female	2	27	27	56
Total	16	131	180	327

Table 2.10b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by cyclist sex and age group of casualty

Cyclist sex	Age group (years)			Total
	5-7	8-12	13-15	
Male	1	11	24	36
Female	1	1	5	7
Total	2	12	29	43

Table 2.10c
Number of cyclist casualties aged 5-15 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	144	68	59	271
Female	34	8	14	56
Total	178	76	73	327

Table 2.10d
Number of seriously injured cyclist casualties aged 5-15 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	14	11	11	36
Female	3	2	2	7
Total	17	13	13	43

Table 2.11c
 Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
 by cyclist age and crash postcode group

Cyclist age	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
5	1	-	1	2
6	1	3	4	8
7	2	2	2	6
8	5	1	2	8
9	14	3	7	24
10	13	6	11	30
11	17	5	7	29
12	22	9	9	40
13	36	17	13	66
14	28	19	5	52
15	39	11	12	62
Total	178	76	73	327

Table 2.11d
 Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
 by cyclist age and crash postcode group

Cyclist age	Crash postcode group			Total
	5000-5099	5100-5199	5200-5999	
5	-	-	1	1
6	-	-	1	1
8	-	-	1	1
9	-	-	1	1
10	1	1	1	3
11	-	2	-	2
12	1	1	3	5
13	5	1	-	6
14	4	7	1	12
15	6	1	4	11
Total	17	13	13	43

Table 2.12a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by cyclist home postcode group and age group of casualty

Cyclist home postcode group	Age group (years)			Total
	5-7	8-12	13-15	
5000-5099	3	64	95	162
5100-5199	6	25	45	76
5200-5999	6	33	35	74
Other/ Unknown	1	9	5	15
Total	16	131	180	327

Table 2.12b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by cyclist home postcode group and age group of casualty

Cyclist home postcode group	Age group (years)			Total
	5-7	8-12	13-15	
5000-5099	-	2	15	17
5100-5199	-	3	5	8
5200-5999	1	6	7	14
Other/ Unknown	1	1	2	4
Total	2	12	29	43

Table 2.12c
Number of cyclist casualties aged 5-15 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	159	3	-	162
5100-5199	9	66	1	76
5200-5999	4	2	68	74
Other/ Unknown	6	5	4	15
Total	178	76	73	327

Table 2.12d
Number of seriously injured cyclist casualties aged 5-15 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	15	2	-	17
5100-5199	-	8	-	8
5200-5999	2	-	12	14
Other/ Unknown	-	3	1	4
Total	17	13	13	43

2.5 The other vehicle and its driver

Table 2.13a

Cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Male	7	51	59	117
Female	7	54	64	125
Unknown	1	4	12	17
Total	15	109	135	259

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

Table 2.13b

Seriously injured cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Male	1	4	12	17
Female	1	6	9	16
Unknown	-	-	1	1
Total	2	10	22	34

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

Table 2.13c

Cyclist casualties aged 5-15 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	68	27	22	117
Female	65	26	34	125
Unknown	9	4	4	17
Total	142	57	60	259

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

Table 2.13d

Seriously injured cyclist casualties aged 5-15 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	10	2	5	17
Female	4	6	6	16
Unknown	1	-	-	1
Total	15	8	11	34

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

Table 2.14a
Cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
15-19	3	5	6	14
20-29	3	21	19	43
30-39	2	20	17	39
40-49	2	21	29	52
50-59	2	16	18	36
60-69	1	7	15	23
70-79	1	6	6	13
80-89	-	3	1	4
Unknown	1	10	24	35
Total	15	109	135	259

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

Table 2.14b
Seriously injured cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
15-19	1	1	-	2
20-29	1	3	2	6
30-39	-	1	3	4
40-49	-	2	6	8
50-59	-	3	2	5
60-69	-	-	5	5
70-79	-	-	1	1
Unknown	-	-	3	3
Total	2	10	22	34

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

Table 2.14c

Cyclist casualties aged 5-15 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	
15-19	4	4	6	14
20-29	18	14	11	43
30-39	23	10	6	39
40-49	32	11	9	52
50-59	21	5	10	36
60-69	15	3	5	23
70-79	8	2	3	13
80-89	3	-	1	4
Unknown	18	8	9	35
Total	142	57	60	259

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

Table 2.14d

Seriously injured cyclist casualties aged 5-15 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	
15-19	1	-	1	2
20-29	1	2	3	6
30-39	1	3	-	4
40-49	3	1	4	8
50-59	3	-	2	5
60-69	4	-	1	5
70-79	-	1	-	1
Unknown	2	1	-	3
Total	15	8	11	34

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

Table 2.15a

Cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Car (and derivatives)	15	104	128	247
Motorcycles	-	2	-	2
Trucks and buses	-	3	7	10
Total	15	109	135	259

Table 2.15b

Seriously injured cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
Car (and derivatives)	2	9	20	31
Motorcycles	-	1	-	1
Trucks and buses	-	-	2	2
Total	2	10	22	34

Table 2.15c

Cyclist casualties aged 5-15 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)	135	57	55	247
Motorcycles	-	-	2	2
Trucks and buses	7	-	3	10
Total	142	57	60	259

Table 2.15d

Seriously injured cyclist casualties aged 5-15 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)	14	8	9	31
Motorcycles	-	-	1	1
Trucks and buses	1	-	1	2
Total	15	8	11	34

Table 2.16a

Cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
1950-1990	1	4	5	10
1990-1999	2	21	25	48
2000-2009	9	47	61	117
2010-2018	2	28	23	53
Unknown	1	9	21	31
Total	15	109	135	259

Table 2.16b

Seriously injured cyclist casualties aged 5-15 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
	5-7	8-12	13-15	
1950-1990	-	1	-	1
1990-1999	-	4	4	8
2000-2009	2	4	14	20
2010-2018	-	-	1	1
Unknown	-	-	3	3
Total	2	10	22	34

Table 2.16c
Cyclist casualties aged 5-15 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	
1950-1990	2	4	4	10
1990-1999	23	15	10	48
2000-2009	73	17	27	117
2010-2018	30	13	10	53
Unknown	14	8	9	31
Total	142	57	60	259

Table 2.16d
Seriously injured cyclist casualties aged 5-15 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	
1950-1990	-	-	1	1
1990-1999	2	4	2	8
2000-2009	10	3	7	20
2010-2018	1	-	1	2
Unknown	2	1	-	3
Total	15	8	11	34

2.6 Outcome

Table 2.17a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by cyclist injury severity and age group of casualty

Cyclist injury severity	Age group (years)			Total
	5-7	8-12	13-15	
Private doctor	1	24	34	59
Treated at hospital	13	95	117	225
Admitted to hospital	2	12	28	42
Fatal	-	-	1	1
Total	16	131	180	327

Table 2.17c
Number of cyclist casualties aged 5-15 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	40	8	11	59
Treated at hospital	121	55	49	225
Admitted to hospital	17	13	12	42
Fatal	-	-	1	1
Total	178	76	73	327

Table 2.18a
Number of cyclist casualties aged 5-15 in South Australia 2009-2018,
by treating hospital and age group of casualty

Treating hospital	Age group (years)			Total
	5-7	8-12	13-15	
Flinders Medical Centre	2	12	30	44
Lyell McEwin Hospital	2	7	15	24
Modbury Public Hospital	1	1	6	8
Royal Adelaide Hospital	-	2	3	5
Women's & Children's Hospital	2	48	57	107
Other	7	28	25	60
Unknown	2	33	44	79
Total	16	131	180	327

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

Table 2.18b
Number of seriously injured cyclist casualties aged 5-15 in South Australia 2009-2018,
by treating hospital and age group of casualty

Treating hospital	Age group (years)			Total
	5-7	8-12	13-15	
Flinders Medical Centre	-	1	6	7
Lyell McEwin Hospital	-	-	2	2
Royal Adelaide Hospital	-	-	2	2
Women's & Children's Hospital	-	5	17	22
Other	1	5	1	7
Unknown	1	1	1	3
Total	2	12	29	43

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

Table 2.18c
Number of cyclist casualties aged 5-15 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	25	19	-	44
Lyell McEwin Hospital	-	22	2	24
Modbury Public Hospital	6	2	-	8
Royal Adelaide Hospital	4	-	1	5
Women's & Children's Hospital	87	12	8	107
Other	4	10	46	60
Unknown	52	11	16	79
Total	178	76	73	327

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

Table 2.18d
Number of seriously injured cyclist casualties aged 5-15 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	4	3	-	7
Lyell McEwin Hospital	-	1	1	2
Royal Adelaide Hospital	1	-	1	2
Women's & Children's Hospital	12	8	2	22
Other	-	1	6	7
Unknown	-	-	3	3
Total	17	13	13	43

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)

Child cyclist injuries were higher in Autumn and Spring, and lower in the winter months (Table 2.1). There tended to be more casualties per day on weekdays than on weekends (Table 2.2), with the greatest number of crashes and serious-injury crashes occurring on Mondays. The times of day when casualties occurred most frequently included the hours 8:00 am to 8:59 am and 3:00 pm to 5:59 pm, coinciding with most of the children travelling to or from school (Table 2.3). In the inner suburbs of Adelaide (postcodes 5000-5099) the hour of 8 am contained the greatest number of injury casualties (Table 2.3c,d).

Place (postcode)

Postcode groups 5000-5099, 5100-5199, and 5200-5999 accounted for 54%, 23% and 22% of casualties respectively (Table 2.4a). For seriously injured child cyclists, the postcode groups accounted for 39%, 30% and 30% respectively (Table 2.4b). The crash location postcodes of 55% of cyclist casualties were the same as which the cyclists lived in, and the same for 60% of serious injury cyclist casualties (Table 2.5). As the age of the cyclists increases, the location of the crash is less likely to be in the home postcode of the cyclist (Table 2.5a).

Crash site and circumstances

Child cyclists injuries occurred slightly less often at intersections than not with a 47% to 52% split (Table 2.6a), and serious injury child cyclists casualties had an almost equal count for intersections and not at intersections with a 49% to 51% split (Table 2.6b). The majority of casualties, 92%, 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 5% of all injured child cyclists and 21% of seriously injured child cyclists (Table 2.7). Road wetness showed similar results between injury casualties and serious injury casualties with proportions of 96% and 98% occurring on dry roads respectively (Table 2.8). Injury casualties categorised into “right angle” crash types were most common, comprising 58% of the total (Table 2.9); however, some child 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 child cyclists outnumbered females about 4.8 to 1 for all injury casualties and 5.1 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 95% of the total injured child cyclists and 91% of the seriously injured child cyclists (Table 2.15). Males and females had similar proportions being the drivers of the other vehicles (Table 2.13), and the 40 to 49 years old age bracket had the highest proportion of other vehicle drivers (Table 2.14).

Outcome

Fatalities comprised less than 1% of the total casualties. Casualties recorded as admitted to hospital comprised 13%, and casualties recorded as treated at hospital comprised 69%. Those treated but not at a hospital comprised 18% of all injury cases (Table 2.17).

4 Discussion

This report has revealed many interesting characteristics of child (aged under 16 years old) injured and seriously 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 child cyclists, any obstacles that either participant was avoiding, the visibility of the child cyclists, any dynamic visual obstructions affecting any participants, and the actions of the uninvolved traffic. Both types of data sets are essential to understanding child cyclist crashes. Fatal crashes, for example, may include many atypical crash types for which in-depth datasets are of particular value, permitting discussion of any unusual factors contributing to the crash.

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