

## Original research paper

# Fatal Road Traffic Accidents among Young Children

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### Abstract

Fatal road traffic accidents in childhood constitute a significant public health problem. Young children are extremely vulnerable to such injuries which are vastly preventable. 59 cases of fatal road traffic accidents in children aged below 16 years, autopsied during 1 year period were studied. Males accounted for 83.1% cases with male-female ratio of 4.9. The most common age group involved was 13-16 years. The most frequent victims of road traffic accidents were pedestrians (61%) followed by cyclists (13.6%). More than half of the cases occurred in winter season and majority occurred at 12-4 PM. Children themselves were at fault in majority of cases. Head injury alone was fatal in 72.9% cases. None of the victim received any treatment or first-aid at the site of accident. 72.9% of victims died within 6 hrs of accident. The study highlights the pattern of fatalities due to road accidents in children and suggests suitable preventive measures to reduce burden of childhood mortality due to road accidents.

**Key Words:** Road Traffic Accidents, Children, Injury, Fatal.

### Introduction:

In many Countries around the world, injuries are the leading cause of death. Approximately 20% of all unintentional deaths worldwide occur in children under 15 years old and are among 10 leading causes of death. Road accidents account for 21% of all death in this age group. [1] 0-14 year children constitute 30.4% of total population in our country. Accidental death of children accounts for 6.7% of total such death out of which 36.3% are due to road accidents. [2] Road Traffic injuries are a leading cause of death in children. Pedestrian are 30 times more involved in accidents as compare to cyclists and car occupants [3].

Road accidents accounted for 55% of all accidental death in children and in almost all of these, the unsafe behavior of child was considered to be at fault. [4] These road accident deaths occur in healthy children who might have been expected to have had productive lives and cause immeasurable distress and guilt to the parents and other parties involved. So the prevention of accidents in children is being increasingly recognized as an important public health issue.

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### Material & Methods:

All the children under 16 years of age were included in study, which died due to road accidents over one year period.

During 1 year 450 cases of road accidents were brought for postmortem examination. Out of these 59 cases were below 16 years of age. These cases were thoroughly studied for age and sex distribution, place, time and cause of accident, pattern and distribution of injuries, fatal injuries and cause of accident. The history was taken from relatives, friends, and police inquest report and hospital records. The data thus obtained was analyzed statistically.

### Observations:

In one year study period 59 children aged less than 16 years died due to road accidents out of 450 cases (13.1%) out of which 83.1% were males and 16.9% were females. The commonest age group involved was 13-16 years (30.5%) followed by 9-12 years (27.1%) and 6-8 years (20.4%) respectively. (Table - 1)

There were no fatal accidents before one year of age and after that the incidence increased as the age group increased. The national and state highways accounted for 55.9% of all cases followed by village roads (23.8%). (Table-2)

Pedestrians (61%) were the commonest group of road users killed followed by cyclists (13.6%) (Table - 3) 54.2% of fatal accidents occurred in winter season (Table - 4). The majority of accidents occurred between 12-2 PM (27.1%) followed by 2-4 PM (18.6%) and 8-10 AM (15.3%). No accident occurred between 10 PM to 6 AM. (Table - 5) Trucks and buses were responsible for 40% of fatal accident followed by cars and jeeps

(30.5%) (Table - 6) Hit & Run type of accidents occurred 59.3% cases followed by run over accidents in 18.6% cases (Table-7). Children were themselves at fault in majority of cases like negligent road crossing (22%), playing on road, (16.9%) and cycling without helmet (13.6%).(Table-8)

None of the victim received any treatment or first-aid at the site of accident. 16.9% cases died on spot and only 1.7% cases reached hospital with in 15 min of accident where as majority reached with in 15-30 min (18.6%) followed by 30-45 min (15.3%). (Table-9)

43 (72.9%) patients died within six hrs of accidents out of which 10 (16.9%) died on spot, six (10.2%) with in 0.5-1 hrs and 23 (40%) with in 1-6 hrs. Only two (3.4%) patients survived for more than 14 days. The longest survival period was 26 days 20 hrs in a pedestrian who died due to subdural effusion and compression of brain. (Table-10)

The commonest site injured was had and face (84.7%) followed by lower limbs (76.3%) and upper limbs (72.9%). Multiple injuries are a rule in road traffic accidents. In total there were 189 major injuries in 59 cases i.e. injury per case was 3.2. (Table-11)

Head injury was fatal in 72.9% cases followed by abdominal (30.5%) and chest injuries (28.7%). There were 87 fatal injuries in 59 cases that is fatal injury/case was 1.47 (Table-12)

Hemorrhage and shock was leading cause of death accounting for 37.3% deaths followed by laceration of brain and intracranial bleed in 22% cases each. (Table-13)

**Discussion:**

Road traffic accidents are a major cause of childhood motility. After one year of age as the age group advances, the incidence of fatal accidents increases. Males outnumbered females in ratio of 5:1. [4]

Pedestrians and cyclist are the common group injured. [3, 4, 5, 6, 7] Majority of fatal accidents occurred during winter season. Children were at fault in majority of cases. They were either playing on the road or crossing the roads, unsupervised by adults. The cyclists were not wearing any protection helmets.[4,5,8] None of the injured received any treatment or first aid at the site of accident.16.9% cases died on the spot and only 1.7% reached hospital with in 15 minutes of accident. 3/4<sup>th</sup> of these death occurred with in first 6 hour. [9]

Multiple injuries are a rule in road accidents. Major injury per case was 3.2 and fatal injury per case was 1.47. Head injuries alone were cause of fatalities in majority of cases (72.9%) [4, 8, 10]

Road accidents are most common cause of death in children over one year of age. So the prevention of injury to children remains high priority

for society. So the preventive measures should be directed towards improving the road safety for children, increased supervision of children by adults and the provision of safe play areas away from the traffic. [11]

**Conclusion:**

Fatal road accidents are a major cause of childhood mortality up to 16 years of age involving mainly males. Children are themselves at fault in majority of cases. To prevent these early childhood deaths, children should be educated about traffic rules. They should be separated from high-speed highways and safe playgrounds should be developed for their recreation. The cyclists should have proper training and should be encouraged to obey traffic rules.

Wearing of safety helmets should be made compulsory even for the cyclists. Smaller children should not be left unattended by parents near the roads. Special restraining devices should be installed in cars and buses. Walking should be encouraged in children rather than cycling for good health and safe journey.

**Table No. 1: Age & Sex Distribution**

Age Group (Years)	Male No. (%)	Female No. (%)	Total No. (%)
0-1	0 (0)	0 (0)	0 (0)
2-3	3 (5.1)	0 (0)	3 (5.1)
4-5	6 (10.2)	4 (6.8)	10 (16.9)
6-8	9 (15.3)	3 (5.1)	12 (20.4)
9-12	13 (22)	3 (5.1)	16 (27.1)
13-16	18 (30.5)	0 (0)	18 (30.5)
Total (N=59)	49 (83.1)	10 (16.9)	59 (100)

**Table No. 2: Place of Accident**

Place	No.	%
National Highway	16	27.1
State Highway	17	28.7
City Road	9	15.3
Village Road	14	23.8
Approach Road	3	5.1
Total (N=59)	59	100

**Table No. 3: Type of Road User Killed**

Type of Road User	No.	%
Pedestrian	36	61.0
Cyclist	8	13.6
Ride Motor Cycle	6	10.2
Cars Jeep	2	3.4
Passenger Bus	4	6.8
Others	3	5.1
Total (N=59)	59	100

**Table No. 7: Type of Accident**

Type of Accident	No.	%
Hit & Run	35	59.3
Run Over	11	18.6
Head on	3	5.1
Fall from bus	4	6.8
Over turn & Skidding	4	6.8
Others	2	3.4
Total (N=59)	59	100

**Table No. 4: Seasonal Variation**

Seasons	No.	%
Winter Seasons	32	54.2
Summer Seasons	19	32.2
Raining Seasons	8	13.6
Total (N=59)	59	100

**Table No. 5: Time of Accident**

Time of Accident	No.	%
6-8 A.M	3	5.1
8-10 A.M	9	15.3
10-12 A.M	7	11.9
12-2 P.M	16	27.1
2-4 P.M	11	18.6
4-6 P.M	6	10.2
6-8 P.M	6	10.2
8-10 P.M	1	1.7
10P.M. - 6 A.M	0	0
Total (N=59)	59	100

**Table No. 6: Vehicles Responsible for Accident**

Responsible Vehicles	No.	%
Trucks & Buses	23	40.0
Cars & Jeeps	18	30.5
Tractor	7	11.9
Two wheelers	6	10.2
Others	5	8.5
Total (N=59)	59	100

**Table No. 8: Cause of Accident**

Cause of Accident	No.	%
Negligent Road Crossing	13	22.0
Playing on Road	10	16.9
Negligent Cycling	8	13.6
Negligent Driving	8	13.6
Over Speeding	4	6.8
Poor Vision/Fog	3	5.1
Standing on Doors/Scoters	7	11.9
Others	6	10.2
Total (N=59)	59	100

**Table No. 9: Hospital Survival Period**

Time to reach Hospital	No.	%
<15 Min	1	1.7
15-30 Min	11	18.6
30-45 Min	9	15.3
45-60 Min	6	10.2
1-1.5 hrs	9	15.3
1.5-2 hrs	2	3.4
2-2.5 hrs	7	11.9
>3 hrs	4	6.8
Spot Death	10	16.9
Total (N=59)	59	100

**Table No. 10: Survival Period**

Survival Period	No.	%
0-0.5 hrs	14	23.8
0.5-1 hrs	6	10.2
1-6 hrs	23	40.0
6-12 hrs	3	5.1
12-24 hrs	1	1.7
24-48 hrs	4	6.8
48-72 hrs	1	1.7
3-5 days	3	5.1
5-7 days	0	0
7-14 days	2	3.4
>14 days	2	3.4
Total (N=59)	59	100

**Table No. 11: Site of Injury**

Site of Injury	No.	%
Head & Face	50	84.7
Neck	3	5.1
Thorax	26	44.1
Abdomen & Pelvis	22	37.3
Upper limb	43	72.9
Lower limb	45	76.3
Total (N=59)	189	Injury /Case =3.2

**Table No. 12: Fatal Injuries**

Site of Fatal injury	No.	%
Head	43	72.9
Cervical Spine	4	6.8
Chest	17	28.7
Abdomen	18	30.5
Pelvis	3	5.1
Lower limb	2	3.4
Total (N=59)	87	Injury /Case =1.47

**Table No. 13: Cause of Death**

Cause of Death	No.	%
Hemorrhage & Shock	22	37.3
Laceration of Brain	13	22.0
Intracranial Bleed	13	22.0
Compression of Brain	6	10.2
Respiratory Failure	4	6.8
Rupture of Heart	1	1.7
Total (N=59)	59	100

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