

A Cross-Sectional Study of Deaths Occurred from Road Traffic Accidents in Eluru City

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Abstract

Background: Road Traffic Accidents (RTAs) is one among the top 5 causes of morbidity and mortality in South-East Asian countries. RTA are important causes of mortality and morbidity in India. The study was to analyze the data in relation to demographic variables, marital status, time, place, type of vehicle and roads, etc among the pedestrian deaths occurred out of road traffic accidents.

Material and Methods: This was a cross sectional study and the data was collected from the mortuary records of the District Hospital, Eluru. All the victims were pedestrians said to have died of vehicular accidents during the period from 1st January 2016 to 31st December 2017. **Result:** In road traffic accidents 68 pedestrians were included during the study period. It was observed that males account for 51 (75 p.c.) and females 17 (25 p.c.), male to female ratio is 3:1. Most commonly involved age group is middle aged 41-50 years & 51-60 years (26 p.c.). Maximum number of deaths occurred in the month of August & October (13 p.c.), in rainy seasons (35 p.c.), during 6PM – 12 mid night (49 p.c.), on highway roads (44 p.c.), by the two wheeler vehicles (41 p.c.). The most common cause of death is head injury (56 p.c.).

Conclusion: Most of the pedestrians involved in road traffic accidents were males, middle aged group and married. In August, October months and rainy season's maximum deaths occurred. Most fatalities occurred during night time and maximum during late evenings. High ways are most commonly involved road to death. Two wheeler vehicles are involved in most of the fatalities and the most common cause of death is head injury.

Keywords: Road Traffic Accidents; demographic variables; pedestrians;

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Introduction:

The number of deaths on the world's roads remains unacceptably high with 1.35 million people dying each year. Road traffic injuries are the 8th leading cause of death for people of all ages. It is number one cause of death for children and young adults 5-29 years of age. The rate of death in low-income countries is 3 times higher than in high-income countries. Although only 1% of the world's motor vehicles are in low-income countries, 13% of

deaths occur in these countries. Countries in Africa and South-East Asia have regional rates of road traffic deaths higher than the global rate with 26.6 and 20.7 deaths per 100,000 population respectively. The rates of road traffic death are highest in Africa (26.6/100,000 people) and South-East Asia (20.7/100,000 people).

More than half of all road traffic deaths are among vulnerable road users: pedestrians, cyclists and motorcyclists. Globally, pedestrians and cyclists represent 26% of all deaths, with those using motorized two- and three-wheelers comprising another 28%. Car occupants make up 29% of all deaths and the remaining 17% are unidentified road users. [1] In India a total of 4,64,910 road accidents have been reported by States and Union Territories (UTs) in the calendar year 2017 claiming 1,47,913 lives and causing injuries to

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4,70,975 persons. These figures translate, on an average, into 1274 accidents and 405 deaths every day or 53 accidents and 17 deaths every hour in the country. [2]

Objectives:

1. To analyze the socio-demographic details of the dead and also the vehicles involved in road traffic accidents.
2. To suggest the remedial measures to reduce mortality among pedestrians.

Materials and Methods

This was a cross sectional study and the data was collected from the mortuary records of the District Hospital, Eluru. All the victims were pedestrians who have died of vehicular accidents during the period from 1st January 2016 to 31st December 2017. The data was tabulated and calculated using descriptive statistics.

Results:

Table 1: Sex Distribution

Sex	Number	Percentage
Male	51	72 %
Female	17	25%
Total	68	100

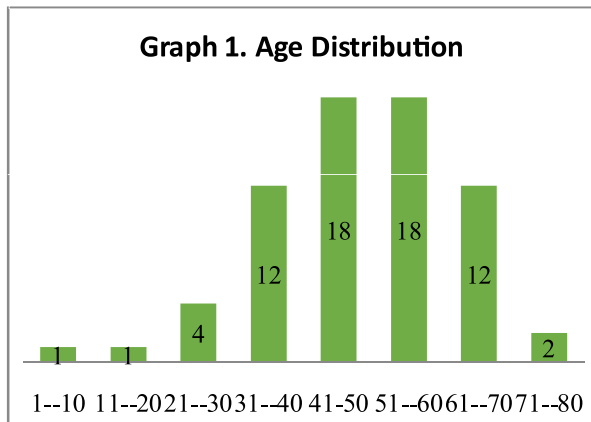


Table 2: Marital Status Distribution

Marital status	Number	Percentage (%)
Married	63	93
Unmarried	4	6
Unknown	1	1
Total	68	100

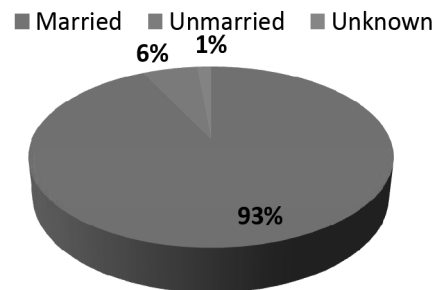
Table 3: Month wise Distribution

Month	Number	Percentage (%)
January	8	12
February	5	7
March	6	9
April	2	3
May	6	9
June	5	7
July	3	5
August	9	13
September	7	10
October	9	13
November	5	7
December	3	5
Total	68	100

Table 4: Time of Accident

Time	Number	%
6AM - 12Noon	12	18
12Noon - 6PM	16	23
6PM - 12Mid night	33	49
12Mid night - 6AM	7	10
Total	68	100

Graph 2. Marital Status



Graph 3. Seasonal Variation

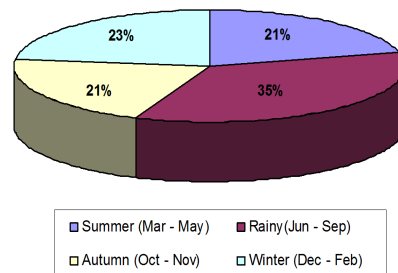
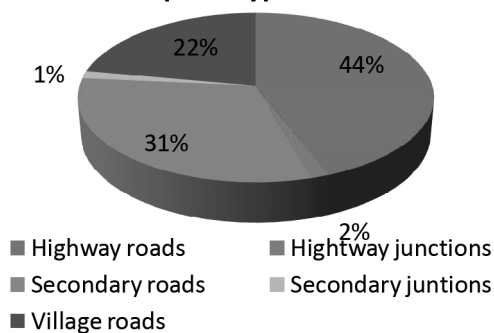


Table 5: Place of Death

Place	Number	Percentage (%)
Spot	9	13
During Transport	10	15
Hospital	48	71
Home	1	1
Total	68	100

Table 6: Period of Survival after Accident

Time	Number	Percentage (%)
Spot	9	13
within 1 hour	5	7
1--6 hours	18	27
6--24 hours	7	10
1-3days	9	13
4-7 days	10	15
1-2 wks	6	9
2-4 wks	3	4
>4 wks	1	2
Total	68	100

Graph 4. Type of Roads**Table 7: Type of Vehicle**

Type	Number	Percentage (%)
Two wheeler	28	41
Three wheeler	5	7
Four wheeler-Light	10	15
Four wheeler-Heavy	18	27
Unknown Vehicle	7	10
Total	68	100

Table 8: Cause of Death

Type of Injury	Number	Percentage (%)
Head injury	38	56
Multiple Injuries	17	25
Septicemia	3	4
Shock & Hemorrhage	7	10
Spinal cord injury	2	3
Complications	1	2
Total	68	100

Discussion:

In our study deaths in males were 51 (75 p.c) which was more than females 17 (25 p.c.) leading to male to female ratio of 3:1 [Table 1]. According to study by Farooqui JM et al. 74 were male, with male to female ratio being 3.08:1.³ In a study done by Mandal BK et al.⁴ showed male to female ratio of 1.8:1. Study conducted by Singh et al.⁵ showed that the number of male victims were more than the seven-eighth of the total cases, giving the ratio of male:female = 7:1.⁶ Menon and Nagesh showed that males comprised 89% and females 11% of the total victims.⁷ Chavali et al.⁸ and Sharma et al.⁹ found male:female ratio being 5:1.

Most of the fatalities occurred in middle age groups 41-50 years (26%) & 51-60 years (26%) followed by 31-40 & 61-70 years (18%), 21-30 years (6%), 71-80 years (3%), 1-10 years (2%), 11-20 years (1%) [Table 2]. According to study by Mandal BK et al. highest number (17 or 21.3%) of fatalities occurred in 41-50 years age group followed by the age group 31-40 years (15 or 18.7%), 21-30 years and >50 years (14 or 17.5% each), 11-20 years (12 or 15%), and <10 years (8 or 10%).⁴ According to study by Farooqui JM et al. the highest numbers of deaths (39.79%) were recorded in the 20-39 years age group.³ Most of the victims are married 63 (93%) [Table 3]. Maximum number of deaths were present in the month of August and October (13%) followed by January 12% [Table 4].

Deaths were maximum in Rainy seasons (35%) followed by Winter (23%), followed by Summer and Autumn (21%). [Table 5]

Maximum number of deaths occurred between 6PM to 12.mid night (49%) followed by 12noon-6PM (23%) followed by 6AM to 12.noon (18%) followed by 12 mid night to 6AM (10%) [Table 6]. According to study by Reddy N B et al. more crashes 37 (37.0%) took place between 6:00 PM to 12:00 PM.¹⁰ According to study by Farooqui JM et al. The maximum number i.e. 38 (38.77%) of accidents took place between the hours of 12.00pm and 18.00pm followed by 32 (32.67 per cent) occurring between 18.00pm–00.00am hours [3]

Most of the victims were dying in the hospital (71%), followed by during transportation to hospital (15%) followed by on spot death (13%)[Table 7]. According to Reddy N B et al, a large number (n=63, 64.28%) of victims either died on the scene or during transportation.¹⁰

Period of survival after accident with maximum deaths occurred within 1-6 hrs (27%), followed by within 4-7 days (15%), followed by spot (13%) and 1-3 (13%) [Table 8]. According to Reddy N B et al. Only 11 (11.22%) individuals survived for 2-6 hours following the RTA while just one (1.02%) survived for more than two weeks of hospitalization. 20% of the victims died on the spot and 39% were survived up to 24 hours, and majority of the victims survived more than 24 hours (41%), but these too died within 21 days.¹⁰ According to Meera et al. study, 47% of them were died on the spot, and 44% were died within 24 hours.¹¹

Maximum deaths occurred on highway roads (44%) followed by secondary roads (31%) followed by village roads (22%)[Table 9]. According to study by Farooqui JM et al. Forty-seven per cent (47.97%) of cases were from accidents occurring on secondary systems i.e. state highways and major district highways, followed by 27 (27.55%) on rural and village roads.³

The most common vehicle involved in fatal deaths is two wheelers (41%) followed by four

wheeler- Heavy (27%), followed by four wheeler-light (15%) [Table 10]. In a study by Mandal BK et al. four or more wheelers – heavy vehicles involved in the maximum (38 or 47.5%) cases followed by (38 or 47.5%) followed by four or more wheelers – light (22 or 27.5%) and motorbike (20 or 25%).⁴ In low-income countries, where the majority of pedestrian impacts are with buses and cars, one hospital-based study in New Delhi by Varghese found that 16% of injured pedestrians had been struck by motorized two-wheelers.⁵ Crandall et al. found that crashes between vehicles and pedestrians are responsible for more than a third of all traffic-related deaths and injuries worldwide.¹³ According to Reddy N B et al, heavy vehicles (trucks, oil tanker, lorries, bus etc.) have been found to be mostly responsible for 54.0% of cases, followed by light vehicles (car, jeep, van, taxis) 24.0%, and 12% by two-wheeler of fatal RTA.¹⁰

The most common cause of death is head injury (38 or 56%), followed by multiple injuries (17 or 25%), shock & hemorrhage (7 or 10%), Septicemia (3 or 4%), Spinal cord injury (2 or 3%), Complications (1 or 2%) (Table 11). According to Reddy N B et al, most common cause of death in RTA was head injury 47 (47.0%), second common cause of death was irreversible shock in 42 (42.0%), and in remained, septicemia 11 (11.0%) was the cause of deaths.¹⁰ According to study by Ravindra et al.¹² study and Meera et al.¹¹ study; shock was the major culprit (62.7%) and (44%), respectively.

Conclusion:

Most of the pedestrians involved in road traffic accidents were males, middle aged group and married causing loss of most productive lives and causing economic burden on family. In August, October months and rainy season's maximum deaths occurred mostly due slippery nature of roads. Most fatalities occurred during night time and maximum during late evenings due to poor visibility resulting from poor electrification of roads. High ways are most commonly involved road to death as speed is the factor on

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