Trends and Analysis of Road Traffic Accidents in Hyderabad City: Based on data form the Transport Department of Government of Andhra Pradesh and Hyderabad Traffic Police Department

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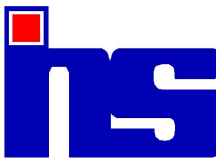

THE INSTITUTE OF HEALTH SYSTEMS

Trends and Analysis of Road Traffic Accidents in Hyderabad City: Based on data form the Transport Department of Government of Andhra Pradesh and Hyderabad Traffic Police Department

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Introduction:

The alarming increase in morbidity and mortality owing to Road Traffic Injuries over the past few decades is a matter of great concern globally. The leading cause of injuries resulting in loss of healthy years of life, are those caused by motor vehicle accidents (WHO, 1999). An estimated ten million accidents involving motor vehicles occur annually worldwide (WHO,1999). Accidents are a major cause of demands on the health system, whether at primary health care level or at the tertiary level.

Deaths among adolescents and young adults, caused due to motor vehicle accidents are alarmingly increasing in most of the developing countries across the globe (Odero W, 1997; Jacobs and Sayer,1983; Mohan and Bawa, 1985). The burden of disease due to injuries is an important public health issue in the developing world ranging between 5% and 20% in developing countries, with about one in ten hospital beds occupied by an accident victim (Baker SP *and others* 1992). Motor vehicle accidents which currently rank ninth in order of disease burden (measured in DALYs) are projected to be the third major cause of disease burden by the year 2020 (Murray & Lopez 1996). The incidence of injury due to accident and violence as per the fifty-second all India survey on morbidity and health care, was reported to be 113 and 49 per 100,000 persons in males and females respectively (NSSO, GoI, 1998).

The dramatic upsurge in the incidence of road traffic injuries is a result of unplanned, rapid urbanisation and industrialisation coupled with increased transportation. The process of urbanisation, modernisation and industrialisation in any country is intricately linked to the development of transportation facilities, which significantly contributes to the overall socioeconomic development. As an offshoot to this rapid development, there has been an increase in the number of transport vehicles on the roads. Mixed traffic, comprising of all types of motor vehicles that move at different speeds, clearly predisposes people to collision and injury. The primary targets of more than half of all fatalities, are the pedestrians and riders of two-wheeled vehicles (WHO, 1987). The phenomenal increase in the road traffic accidents (RTA) has had a devastating effect on the quality of life of injured persons and their families (WHO,1985). There has been a total neglect in the corresponding areas, such as poor road design, poor traffic regulation, poor maintenance of street lights, improvement

in safety technology, improved road safety mechanisms, increased accessibility to medical services and a change in the attitude of road users (WHO,1984).

It is widely acknowledged that injuries occur due to complex but predictable interaction of events and mechanisms many of which are preventable. There is a considerable drain of resources at different levels because of the injuries, which has been realised by many countries (Stansfield *and o*thers 1990).

Epidemiological information on road traffic injuries play a vital role in evolving suitable policies and programmes which would enable decision makers to get a better understanding of this multi-faceted problem. This information would be vital in understanding the magnitude of the problem, causes and severity of road traffic injuries and the consequences in terms of morbidity, mortality and residual disability, the need for acute care, rehabilitation, economic cost and prevention by specifically gathering data on various issues at different levels (WHO,1986). The possible information sources for obtaining data on RTA could be hospitals, police records (traffic and law & order), school records, industrial records, insurance companies, vehicle garages, newspaper reports and others. Depending on the source, purpose, personnel collecting and utilising the data, the quality and content of the information varies (Doris Storms, 1985).

The incidents of RTA in India have been increasing and deaths due to RTA has increased more than ten-fold, from 4500 in 1960 to over 50,000 in 1990 (Sudha Xirsagar, 1990). The increase in RTA has been commensurate with the increase in vehicles. Two-wheelers have been increasing at an annual rate of 16.6%, cars at the rate of 6.9% and buses at the rate of 5.7% to reach a total figure of 15 million motorised vehicles on the roads in 1990. The all India road length is approximately 24,65,877 kilometers. In the case of Andhra Pradesh state, it is approximately 1,78,012 kilometres (MST,GoI, 2001) and the number of vehicles plying on the roads in AP state and in Hyderabad Deccan are 32,83,834 and 9,48,911 respectively (Commissioner of Transport, AP,1999).

The number of road traffic accidents and deaths in Hyderabad, the proposed study area during 1998 - 2001 are 1014 and 107 respectively. One of the factors for accidents in Hyderabad is traffic congestion because, only 6% built-up area is earmarked for roads, as against the required 12%. The traffic speed profile in Hyderabad in 2004 indicates that the prevalent travel speed at the major arterial roads is 14 km/h and for other roads the travel speed is 20 km/h. Hence, before these figures reach alarming levels, a study of this nature is appropriate at this juncture.

There is hardly any study to understand the epidemiology of risk factors associated with RTA in Andhra Pradesh in general and Hyderabad in particular. This paper attempts to analyze the road accidents in Hyderabad using annual data from the year 1996 to 2000.

Methodology:

Accurate data are essential for prioritizing public health issues, monitoring trends and assessing intervention programmes. Many countries including India have inadequate information systems on road traffic injury, making it difficult to realize the full nature of the problem and thus gain the attention that is required from policy-makers and decision makers. The lack of reliable data is most critical at the national and local levels, where the data are needed as a sound basis for road safety planning and decision-making.

An accurate and comprehensive system of collecting and recording accident data is required for studying the traffic accident characteristics in a city. Such data serve to identify the basic causes of accidents and to suggest means for overcoming the deficiencies that lead to such accidents. For the present accident characteristics study in Hyderabad, the past accident data for the years 2000 to 2005 were collected through personal inquiry and from published reports of the Transport Department of Government of Andhra Pradesh and Hyderabad Traffic Police Department. The data obtained were analysed to calculate various indices that indicate the road safety characteristics of the city.

Results:

Vehicular Population in Hyderabad City:

There were 9,26,409 registered motor vehicles in Hyderabad in 2000, which increased to 13,97,489 in 2005, indicating a total growth of more than 50 percent over a six-year period. Between 2000 and 2005, the number of two-wheelers increased by 52.67 percent, three-wheelers by 45.85 percent, four-wheelers by 57.49 percent, light motor vehicles by 31.90 percent, school buses by 109 percent, private transport vehicles by 110.88 percent, RTC buses by 44.14 percent and heavy motor vehicles by 19.81 percent (Table-1).

Table-1: Vehicular Population in Hyderabad City from 2000-2005

Year	Vehicle Type*									
	Two Wheeler	Three Wheeler	Four Wheeler	LMV	School Bus	Private Bus	RTC Bus	HMV	Others	Total
2000	602822	62193	152073	27012	1287	16300	2200	32530	29992	926409
2001	647339	73656	164602	28459	1937	18846	2200	33825	30764	1001628
2002	705918	79826	179061	29913	2149	21699	2200	35042	31227	1087035
2003	769226	80458	195601	31773	2352	25800	2675	36193	31342	1175420

2004	841649	83487	216632	33465	2527	30511	3171	37464	31616	1280522
2005	920324	90708	239504	35630	2690	34374	3171	38973	32115	1397489

*Two Wheeler includes Motorbikes, Scooters and Mopeds; Three Wheeler includes Auto-rickshaws and Seven -seaters; Four Wheeler includes Car, Jeep, Taxi cabs; Light Motor Vehicle includes Goods Carriers such as Swaraj Mazda, DCM Toyota, Mitsubishi Canter etc.; Private Bus includes Privately owned bus; Heavy Motor Vehicle includes Lorry, Trucks, Tankers, etc., ; Others include Road Rollers, Power Tillers, Tractors, Cranes, Earth Movers etc.

Source: Commissioner of Transport, Government of Andhra Pradesh, Hyderabad, India

It can be observed that the growth of personalised vehicles such as private transport vehicles, four-wheelers and two-wheelers is very high. During all the six years from 2000-2005, around 65% of the total vehicles are two-wheelers, which emphasises the over reliance on personalised vehicles. This can be attributed to the fact that the public or mass transport system in Hyderabad is inadequate, inefficient, and not scientifically planned.

Nature of Road Traffic Accidents:

Table-2: Distribution of Crash Events, Deaths and Injuries due to Road Traffic Accidents

Year	Annual Event			Rate per 100,000 Pop.			Rate per 10,000 Vehicles		
	Crash	Death	Injury	Crash	Death	Injury	Crash	Death	Injury
2000	2492	425	2422	68.42	11.67	66.5	26.90	4.59	26.14
2001	2618	405	2841	71.61	11.11	77.71	26.14	4.04	28.36
2002	3039	411	3115	81.98	11.09	84.04	27.96	3.78	28.66
2003	3427	451	3373	91.18	12.00	89.75	29.16	3.84	28.70
2004	3525	419	3741	92.51	11.00	98.18	27.53	3.27	29.21
2005	3088	344	3537	79.93	8.90	91.55	22.10	2.46	25.31

Distribution of crash events, deaths and injury are presented in Table-2 based on different types of denominators. Using a rate per 100,000 population, crash events and injuries were highest in the year 2004. The year 2003 ranked first in terms of death rates. When rate per 10,000 vehicles was considered, crash events and injuries were highest in the year 2003 and 2004 respectively. Death rates were highest in the year 2000.

During the period 2000-2004, the total number of accidents in Hyderabad increased by 41 per cent from 2,492 to 3,525. However, the number of accidents decreased by 12.4 per cent from 3525 in 2004 to 3088 in 2005. By contrast, the number of deaths due to road accidents went down by 4.7 per cent from 425 to 405 during the period 2000-2001 but increased by 10.2 per cent from 405 to 451 between 2001 and 2003. Subsequently, the number of fatalities decreased by 17.9 percent from 419 in 2004 to 344 in 2005. On the other hand, the number of injuries due to accidents increased by 46 per cent during 2000-2005.

Table-3: Road Traffic Accident Risk

Year	Total Number of Road Accidents	Estimated Midyear Population	Accident Risk (col.2*10,000/col.3)
2000	2492	3642072	68.42
2001	2618	3655983	71.61

2002	3039	3706785	81.98
2003	3427	3758294	91.18
2004	3525	3810517	92.51
2005	3088	3863467	79.93

Accident risk is defined as the number of accidents per 100,000 population. Table-3 presents the accident risk in Hyderabad for the period 2000-2005. It can be seen that accident risk increased by 35 percent from 68.42 in 2000 to 92.51 in 2004. The increasing trend of accident risk indicates that the number of nonfatal accidents are gradually increasing, making the people of Hyderabad more vulnerable to the nonfatal type of accidents. However, subsequently an encouraging trend is observed, wherein the accident risk has decreased by 13.6 percent from 92.51 in 2004 to 79.93 in 2005. A further evidence of this fact is visible in Table-4 which depicts the percent distribution of road traffic injury types in Hyderabad. It can be seen from this table that simple injuries have increased by 8.71 percent from 72.46% in 2000 to 78.77% in 2005. On the other hand, grievous and fatal injuries are showing a declining trend.

Table-4: Percent Distribution of Road Traffic Injury Types

Year	n	Simple	Grievous	Fatal
2000	2847	72.46	12.61	14.93
2001	3246	76.43	11.09	12.48
2002	3526	77.23	11.12	11.66
2003	3824	75.58	12.63	11.79
2004	4160	77.21	12.72	10.07
2005	3881	78.77	12.37	8.86

Road Traffic Accident Severity Index:

The accident severity index measures the seriousness of an accident. It is defined as the number of persons killed per 100 accidents. Table-5 presents the accident severity index for Hyderabad during the period 2000-2005. It can be seen that the accident severity index has gradually decreased from 17.05 in 2000 to 11.14 in 2005, a decrease of around 35 per cent.

Table-5: Accident Severity Index

Year	Number of Persons Killed	Total Number of Road Accidents	Accident Severity Index (col.2*100/col.3)
2000	425	2492	17.05
2001	405	2618	15.47
2002	411	3039	13.52
2003	451	3427	13.16
2004	419	3525	11.89
2005	344	3088	11.14

Road Traffic Accident Fatality Rate:

The accident fatality rate is defined as the number of deaths per 10,000 vehicles. Table-6 presents the fatality rates in Hyderabad during the period 2000-2005. There was a

substantial decrease in fatality rate from 4.59 in 2000 to 2.46 in 2005. It may be noted here that although the number of accident deaths in Hyderabad did not decrease significantly, the vehicle population in the same period increased from 9,26,409 to 13,97,489 which resulted in a decrease of fatality rates of more than 46 per cent.

Table-6: Road Traffic Accident Fatality Rate

Year	Total Number of Deaths	Total Number of Motor Vehicles	Accident Fatality Rate (col.2*10,000/col.3)
2000	425	926409	4.59
2001	405	1001628	4.04
2002	411	1087035	3.78
2003	451	1175420	3.84
2004	419	1280522	3.27
2005	344	1397489	2.46

Road Traffic Accident Fatality Risk:

The accident fatality risk, defined as the number of accidental deaths per 100,000 population, shows a decreasing trend in Hyderabad. From Table-7 it is seen that the fatality risk has decreased marginally from 11.67 in 2000 to 8.9 in 2005. However, this decreasing trend was reversed in 2003 compared with 2002. It however showed a downward trend thereafter.

Table-7: Road Traffic Accident Fatality Risk

Year	Total Number of Deaths	Estimated Midyear Population	Accident Fatality Risk (col.2*100,000/col.3)
2000	425	3642072	11.67
2001	405	3655983	11.08
2002	411	3706785	11.09
2003	451	3758294	12
2004	419	3810517	11
2005	344	3863467	8.9

Age-Sex Distribution of Road Traffic Accident Cases:

The age and sex distribution of the persons involved in road traffic accidents for the years 2000-2005 are shown in Table-8. The majority of the affected casualties were predominantly males in all the years. The highest number of victims were between 21-25 years of age followed by 26-30 years and 31-35 years age Group.

Table-8: Age Sex Distribution of Road Traffic Accident Cases

Age Group	2000		2001		2002		2003		2004		2005	
	n-2116	n-376	n-2259	n-359	n-2581	n-458	n-2926	n-501	n-2976	n-549	n-2621	n-467
	M	F	M.	F	M	F	M	F	M	F	M	F
0-5	0.95	3.19	1.15	3.62	1.20	4.15	1.09	5.39	1.08	5.10	1.22	3.43
6-10	2.88	7.98	2.39	8.64	2.56	6.77	1.85	5.19	2.18	3.46	2.10	5.14
11-15	4.16	4.79	3.23	3.34	2.75	3.28	3.08	2.59	2.62	2.91	2.10	2.78
16-20	9.97	10.37	8.90	10.58	9.34	6.77	7.07	9.58	8.27	9.11	7.75	7.49
21-25	18.62	8.78	17.13	8.64	18.09	11.35	19.86	10.58	18.75	12.20	16.33	13.28
26-30	15.45	10.64	17.80	10.03	16.47	9.39	17.84	10.58	15.15	8.01	13.05	9.42
31-35	11.72	8.51	13.37	10.86	12.90	9.83	11.93	9.38	12.37	10.38	10.95	9.85
36-40	9.50	6.91	10.27	7.52	9.69	8.95	9.91	9.18	10.05	9.29	9.08	11.13
41-45	7.47	9.31	7.48	8.36	8.25	7.42	8.68	9.38	11.90	12.02	15.91	12.21
46-50	7.28	8.51	6.95	7.24	6.39	10.48	6.97	9.18	6.01	9.65	8.16	7.49
51-55	4.06	5.05	4.21	5.57	4.92	6.11	4.17	4.39	5.04	6.74	4.88	4.93
56-60	3.26	9.04	3.54	7.52	3.29	7.21	3.86	6.39	3.26	5.83	4.39	5.78
>60	4.68	6.91	3.59	8.08	4.15	8.30	3.69	7.19	3.33	5.28	4.08	7.07

Road Traffic Accident Fatality & Injury Distribution by Age:

Table-9: Road Traffic Accident Fatality Distribution by Age

Age Group	2000	2001	2002	2003	2004	2005
	n-425	n-405	n-411	n-451	n-419	n-344
0-5	1.84	2.47	2.68	2.00	1.91	2.91
6-10	2.53	1.98	2.19	2.66	1.67	2.03
10-15	2.76	2.96	1.46	2.88	1.91	1.16
16-20	6.44	7.16	6.81	6.87	7.64	7.27
21-25	16.55	15.80	17.03	17.07	18.14	11.34
26-30	11.95	17.28	14.60	13.75	14.56	9.88
31-35	10.80	9.88	11.68	8.87	10.98	9.30
36-40	7.36	7.65	9.25	7.54	7.16	9.59
41-45	8.05	6.67	7.06	8.87	14.56	15.41
46-50	8.28	5.43	9.00	8.43	5.97	10.47
51-55	5.06	5.68	4.38	5.76	5.97	6.40
56-60	5.98	6.67	5.84	4.43	2.86	4.94
>60	7.36	7.41	5.35	7.54	4.30	7.56
Unknown	5.06	2.96	2.68	3.33	2.39	1.74

Table-9 presents the fatality distribution by age. This table shows that child fatality in Hyderabad is relatively low during all the six years of analysis (2000 through 2005). The highest number of fatalities are recorded in the economically active and productive age groups of 21-25 and 26-30 years, followed by the 31-35 years age group. A similar pattern is observed in injury distribution by age as well (Table-10).

Table-10: Road Traffic Injury Distribution by Age

Age Group	2000	2001	2002	2003	2004	2005
	n-2422	n-2841	n-3115	n-3373	n-3741	n-3537
0-5	0.99	1.09	1.25	1.54	1.42	1.16
6-10	3.34	2.71	2.89	2.10	2.06	2.04
10-15	4.00	2.64	2.60	2.70	2.35	1.87
16-20	9.37	7.81	8.09	6.88	7.27	6.28
21-25	15.36	12.92	15.02	17.05	15.26	13.26
26-30	13.21	13.41	13.58	15.80	11.98	10.29
31-35	9.99	10.81	7.58	10.91	10.45	8.91
36-40	8.26	8.13	8.31	9.16	8.69	7.69
41-45	6.73	6.20	7.03	7.86	9.81	12.38
46-50	6.36	5.84	5.91	6.49	5.59	6.25
51-55	3.43	3.34	4.53	3.59	4.36	3.73
56-60	3.22	2.96	3.08	3.82	3.15	3.65
>60	3.88	2.89	3.95	3.35	3.07	3.31
Unknown	11.85	19.25	16.18	8.75	14.54	19.20

Vehicle-wise Road Traffic Accident Rates:

Table-11 reports the vehicle-wise road traffic accident rates per 10,000 vehicles in Hyderabad during the period 2000-2005.

Table-11: Vehicle-wise Road Traffic Accident Rates per 10,000 Vehicles

Vehicle Type	2000	2001	2002	2003	2004	2005
Two Wheeler	10.77	11.97	12.65	12.79	12.29	9.28
Three Wheeler	59.81	53.36	60.38	66.87	58.81	48.62
Four Wheeler	37.94	39.00	41.66	43.20	41.91	32.69
Light Motor Vehicle	47.02	39.00	41.45	48.47	43.03	36.21
School Bus	0	41.30	4.65	4.25	51.44	37.17
Private Transport Vehicle	30.67	20.69	17.97	11.24	11.47	11.93
RTC Bus	1186.36	1013.64	1168.18	1005.61	958.69	933.46
Heavy Motor Vehicle	102.98	89.87	101.88	112.73	107.04	92.63
Others	40.34	39.98	44.83	63.49	61.68	53.87
All Vehicles	26.90	26.14	27.96	29.16	27.53	22.10

From Table-11 it is clear that the RTC Buses are killer vehicles being responsible for the highest number of road traffic accidents, a trend which is similar for all the six years of analysis. There are around 106 accidents per 1000 RTC buses occurring on Hyderabad roads. Heavy motor vehicles and three-wheelers are the second and third most risky vehicles respectively. In terms of accident rates, two wheelers are ranked last, but the same category of vehicles are ranked first in terms of total number of vehicles involved in road traffic accidents (Table-14).

Road Traffic Casualties by Type of Vehicles:

Table-12: Road Traffic Casualties by Type of Vehicles

Vehicle Type	2000	2001	2002	2003	2004	2005
	n-2422	n-2841	n-3115	N-3373	n-3741	n-3537
Pedestrian	35.55	31.05	36.89	38.19	36.35	31.24
Cycle	5.99	5.74	5.46	4.45	4.22	3.76
Two Wheeler	40.71	41.11	40.22	41.18	41.41	43.54
Three Wheeler	8.79	8.76	7.45	6.46	7.19	8.45
Four Wheeler	2.44	3.34	2.99	3.23	3.96	4.69
Light Motor Vehicle	0.41	0.88	0.22	0.36	0.45	0.42
Private Transport Vehicle	0.00	0.25	0.10	0.15	0.03	0.23
School Bus	0.00	0.11	0.00	0.00	0.05	0.11
RTC Bus	0.25	0.28	0.48	0.27	0.19	0.40
Heavy Motor Vehicle	0.12	0.46	0.35	0.24	0.29	0.08
Others	5.74	8.03	5.84	5.48	5.85	7.07

Road Traffic Casualties by Type of Vehicles in Hyderabad city from 2000-2005 is shown in Table-12. This table reveals that the most common type of vehicles involved in the highest number of road traffic accident casualties were two-wheelers and pedestrians.

Road Traffic Fatalities by Type of Vehicles:

Table-13: Road Traffic Fatalities by Type of Vehicles

Vehicle Type	2000	2001	2002	2003	2004	2005
	n-425	n-405	n-411	n-451	n-419	n-344
Pedestrian	43.53	43.21	39.66	44.57	39.62	39.53
Cycle	11.06	8.64	9.00	6.65	6.21	5.81
Two Wheeler	30.82	29.88	32.60	31.04	32.94	35.47
Three Wheeler	4.00	3.21	4.38	3.33	4.77	4.94
Four Wheeler	0.00	0.49	1.22	2.66	1.19	0.87
Light Motor Vehicle	0.24	0.25	0.24	0.00	0.00	0.00
Private Transport Vehicle	0.00	0.00	0.00	0.00	0.00	0.00
School Bus	0.00	0.00	0.00	0.00	0.00	0.00
RTC Bus	0.24	0.25	0.24	0.00	0.00	0.29
Heavy Motor Vehicle	0.00	0.74	0.73	0.22	0.00	0.00
Others	10.12	13.33	11.92	11.53	15.27	13.08

Table-13 presents the percent of different categories of vehicles involved in fatal accidents in Hyderabad during the period 2000-2005. From this table it is clear that the pedestrians and two wheelers are the most common type of vehicles involved in fatal accidents.

Road Traffic Casualties by Class of Road-User:

Table-14: Road Traffic Casualties by Class of Road-User

Road user	2000	2001	2002	2003	2004	2005
	n-2422	n-2841	n-3115	N-3373	n-3741	n-3537
Pedestrian	36.74	32.56	37.21	38.94	36.63	31.95
Passenger	2.21	4.22	1.33	1.39	1.44	1.98
Cyclist	6.74	6.10	5.87	4.71	4.42	3.94
Two Wheeler Rider	38.50	39.43	39.05	39.72	40.38	42.70
Driver	15.81	17.68	16.53	15.25	17.12	19.43

Road Traffic Casualties by Class of Road-User in Hyderabad city from 2000-2005 is shown in Table-12. This table reveals that two-wheeler riders and pedestrians comprising the Vulnerable Road Users (VRUs) were involved in the highest number of road traffic accident casualties.

Road Traffic Fatalities by Class of Road-User:

Table-15: Road Traffic Fatalities by Class of Road-User

Road user Type	2000	2001	2002	2003	2004	2005
	n-425	n-405	n-411	n-451	n-419	n-344
Pedestrian	43.53	43.21	39.90	44.57	39.62	39.24
Passenger	2.82	3.46	1.95	0.89	1.19	2.33
Cyclist	11.06	8.64	9.00	6.65	6.21	5.81
Two Wheeler Rider	25.88	27.65	30.17	28.82	31.26	34.01
Driver	16.71	17.04	18.98	19.07	21.72	18.60

Road Traffic Fatalities by Class of Road-User in Hyderabad city from 2000-2005 is shown in Table-15. This table reveals an interesting observation that, while two-wheeler riders were involved in highest number of road traffic casualties (including both fatal and nonfatal cases), the highest number of road traffic accident fatality victims were pedestrians.

Details of Accused & Victim Vehicles involved in Road Traffic Accidents in Hyderabad City:

Tables 16 and 17 depict the types of vehicles of the 'accused' and victims involved in road traffic accidents in Hyderabad city for the period 2000-2005. These data suggest that two-wheelers, four-wheelers, three-wheelers, heavy motor vehicles and RTC buses accounted for the majority of the 'accused' vehicles in these accidents. On the other hand, pedestrians and riders of two-wheelers were the main victims in road traffic accidents.

Table-16: Accused Vehicles involved in Road Traffic Accidents in Hyderabad City

Vehicle Type	2000	2001	2002	2003	2004	2005
	n-2492	n-2618	n-3039	n-3427	n-3525	n-3088
Cycle/Rickshaw	0.20	0.38	0.07	0.35	0.17	0.06
Two Wheeler	26.04	29.60	29.38	28.71	29.33	27.66
Three Wheeler	14.93	15.01	15.86	15.70	13.93	14.28
Four Wheeler	23.15	24.52	24.55	24.66	25.76	25.36
Light Motor Vehicle	5.10	4.24	4.08	4.49	4.09	4.18
Private Transport Vehicle	0.00	0.31	0.03	0.03	0.37	0.32
School Bus	2.01	1.49	1.28	0.85	0.99	1.33
RTC Bus	10.47	8.52	8.46	7.85	8.62	9.59
Heavy Motor Vehicle	13.44	11.61	11.75	11.91	11.38	11.69
Others	4.65	4.32	4.54	5.46	5.36	5.54

Table-17: Victim Vehicles involved in Road Traffic Accidents in Hyderabad City

Vehicle Type	2000	2001	2002	2003	2004	2005
	n-2492	n-2618	n-3039	n-3427	n-3525	n-3088
Pedestrian	40.93	37.59	41.33	41.79	40.88	37.21
Cycle/Rickshaw	7.18	6.95	6.19	5.05	4.68	4.50
Two Wheeler	36.88	38.20	37.81	38.81	38.95	41.61
Three Wheeler	6.74	6.23	5.99	5.25	5.79	6.70
Four Wheeler	1.93	2.52	2.24	2.60	3.09	3.34
Light Motor Vehicle	0.28	0.23	0.13	0.23	0.17	0.26
Private Transport Vehicle	0.00	0.11	0.07	0.12	0.03	0.03
School Bus	0	0.04	0	0	0.03	0.03
RTC Bus	0.24	0.34	0.26	0.15	0.17	0.16
Heavy Motor Vehicle	0.12	0.31	0.30	0.23	0.20	0.26
Others	5.70	7.49	5.69	5.78	6.01	5.89

Conclusion:

The following conclusions may be drawn from the study

1) In General, the accident severity index of Hyderabad has shown a decreasing trend. The accident severity index has gradually decreased form 17.05 in 2000 to 11.14 in 2005, a decrease around 35 percent. Various traffic regulation measures undertaken in the last few years may have helped in curbing the total accidents as well as fatal accidents.
2) A substantial 46 percent decrease of accident fatality rate despite of the considerable increase of vehicle population indicates that the traffic regulation management in Hyderabad may have improved.
3) The traffic accident risk showed an increasing trend between 2000 and 2004. It can be seen that accident risk increase by 35 per cent from 68.42 in 2004. However, in the year 2005 the accident risk has decreased by 13.6 percent decrease from 92.51 in 2004 to 79.93 in 2005 suggestive of effective traffic regulation management in the city.
4) The highest number road traffic casualties are recorded in the economically active and productive age group of 21-35 years. This is similar to that of Indian and Global average.
5) It is observed that two wheeler riders and pedestrian comprising the vulnerable road users were involved in the highest number of road traffic casualties. Where as the RTC Busses are killer vehicle being responsible for the highest number of road traffic accidents, a trend which is similar for all the six years of analysis. In terms of accident rates, two wheelers are ranked last, but the same category of vehicles are ranked first in terms of total number of vehicles involved in road traffic accidents.

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