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ROAD TRAFFIC ACCIDENTS IN TAMILNADU: A HISTORICAL STUDY

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Abstract: The main purpose of this study is to identify and analyze the reasons for road traffic accidents in Tamil Nadu. Also this study investigates the different causes of accidents occurred in past years in Tamil Nadu. Tamil Nadu was reported in one of the accident prone zone in India with having highest rate of road accidents. This study investigates why Tamil Nadu reported in top number of accidents. What are the reasons for occurring accidents and how can resistance the accidents.

Keyword: Accident, Pedestrian, RTI- road traffic injuries, Highway.

INTRODUCTION:

With the expansion in road network, motorization and urbanization in the country, the number of road accidents have surged. Road Traffic Injuries (RTIs) and fatalities have emerged as a major public health concern, with RTIs having become one of the leading causes of deaths, disabilities and hospitalizations which impose severe socio-economic costs across the world.

WHO (2009) reports say,

Half of all global road traffic deaths occur among young adults between 15 and 44 years of age.
73% of all global road traffic fatalities are males.
1.2 million deaths a year
20-50 million are injured or disabled
11th leading cause of death
account for 2.1% of all deaths globally

Road traffic accident is one of the leading causes of deaths worldwide with the developing world most hit. It is estimated that deaths resulting from road traffic accidents is almost 1.2 million worldwide while injuries from such accidents is estimated at 50 million. The Americas bear 11% of the burden of Road Traffic accident mortality. Currently motor vehicle accidents rank 9th in order of disease burden and is projected to be ranked third in the year 2020. Nearly three quarters of deaths resulting from motor vehicle crashes occur in developing countries. In India over 80,000 persons die in the traffic crashes annually, over 1.2 million injured seriously and about 3,000,000 disabled permanently. India already accounts for about 9.5% of the total 1.2 million fatal accidents in the world (Mondal et al., 2011b). In 2007, 1.14 lakh people in India lost their lives in road mishaps — that's significantly higher than the 2006 road death figures in China, 89,455 (Mondal et al., 2011a).

One person dies at every 4.61 minutes in India for road crashes. Road deaths in India registered a sharp 6.1%

rise between 2006 and 2007. The Planning Commission of India had assessed the social cost at Rs. 55,000 crore (Rs.550 billion) on account of road accidents in India (Mondal et al., 2008).

A huge number of researches have been conducted to analyze road crashes. Skidding of road vehicles is considered as one of the major causes of road accidents occurring all over the world. Skid resistance is undoubtedly a vital factor for this type of accidents. Some of the other factors affecting the risk of skidding accidents are vehicle speed, road geometry, traffic density, percentage of trucks in the traffic flow, and wet-pavement exposure. Critical analysis of different crash parameter merits itself as a necessary study from public health point of view. It is a well known fact that rainfall creates lots of road traffic hazard. A number of studies show that precipitation results in more accidents compared with dry conditions (Keay and Simmonds, 2006).

Motor vehicle crashes are the leading cause of death in adolescents and young adults

(Taket 1986; Mohan and Romer 1991; Smith and Barss, 1991; Feachem et al, 1992; Atubi and Onokala, 2009) and of the estimated 856,000 road deaths occurring annually worldwide.

India had earned the dubious distinction of having more number of fatalities due to road accidents in the world. Road safety is emerging as a major social concern around the world especially in India. Drinking and driving is already a serious public health problem, which is likely to emerge as one of the most significant problems in the near future. So this paper aims to analyze the vehicles and roads which reported more accidents frequently in Tamil Nadu.

Tamil Nadu scenario:

Tamil Nadu is the southernmost state of India. It is the 11th largest state with an area of 1,30,058 Sq.km out of country's total area of 3166416 Sq.km and the third most

urbanized State next to Maharashtra and Gujarat. Road network of the state influences considerably the economic development, population distribution, size of cities and towns, environmental quality, energy consumption, access to social infrastructure and above all the quality of life.

The language spoken here is Tamil and most people in the urban areas would be able to understand English. The capital of Tamil Nadu is Chennai (formerly known as Madras). Tamil Nadu is divided into 32 districts.

Tamil Nadu has Pondicherry, Kerala, Karnataka and Andhra Pradesh as its neighbors. It also has one of the longest coastal lines in India and is very closely situated to Sri Lanka.

It is seventh most populous state in India with a population of 72,138,958 (5.96% of India's population; census 2011). It is the seventh most densely populated state in India with a population density of 555 persons per square kilometer as of 2011, having increased from 429 in 1991, significantly higher than the Indian average of 382 persons per square kilometer. 44% of the state's population lives in urban areas.

The major administrative units of the state constitutes 39 Lok Sabha constituencies, 234 Assembly constituencies, 32 districts, 10 city corporations, 152 municipalities, 611 town panchayats and 12,618 village panchayats. Chennai (formerly known as Madras) is the state capital. It is the fourth largest city in India and is also one of the five A1 Metropolitan cities of India.

The total length of road in Tamil Nadu is 1,88,700 Km, of which 61,446 Km length of roads are maintained by Highways Department. Tamil Nadu is in the forefront in developing road infrastructure. The density of road network in Tamil Nadu is 286 Km per lakh of population which is higher than the all India average of 258.20 Km and 137 Km per 100 Sq.Km area as against the all India average of 74.90 Km. Roads in Tamilnadu are broadly grouped under two categories viz. (a) Government Roads and (b) Village roads and others. Realizing the importance of developing and maintaining a good network of roads, for the first time in India, a separate department for Highways was formed at the State level, as early as in April 1946 and the Department has completed platinum jubilee year.

The total length of highways in Tamilnadu is 61,446 km. The details are as follows

I) Category of Roads		
Length in Km		
a) National Highways	-	4483
b) State Highways	-	9256
c) Major District Roads	-	9451
d) Other District Roads	-	38256
(Including 1746 Km of sugarcane roads)		
ii) Details of bridges		
Nos.		
a) Major Bridges	-	1209
b) Minor Bridges	-	7692
c) Culvert	-	99518
d) Railway Over / Under bridges	-	220

Vehicular position in Tamilnadu as on 01-07-2012, it was 15819985 registered vehicles in that, 1023851 vehicles were transport vehicles and 14796134 were non-transport vehicles (13038498 two wheelers)

REVIEW OF LITERATURE:

Selzer (1968) showed that alcohol was a major problem in single vehicle fatal Accidents. In 72 fatal accidents which claimed 87 lives, he showed that half of drivers had serious drinking problems of chronic nature.

A WHO advisory group in 1956 has defined accident as "an unpremeditated event resulting in recognizable damage" According to another definition, an accident is that "Occurrence in sequence of events which usually produces unintended injury death or property damage"

Mortality from RTAs accounts for 10% of all deaths in the 5-44 year age group (Jacobs and Sayer 1983).

Road traffic accidents (RTAs) are the leading cause of deaths in adolescents and young adults globally (Mohan and Romer 1991).

Peden et al. (2001: 12) argues that 'the same road space gets used by modern cars and buses, along with locally developed vehicles for public transport (three-wheeled scooter taxis), scooters and motorcycles, tricycle rickshaws, animal and human drawn carts'. He adds that infrastructure which is designed on the basis of homogeneous traffic models has failed to fulfill the mobility and safety needs of this traffic' (Ibid).

Claret et al. 2002:394; Jelalian et al. 2000: 84-93; Oginni 2008: 226). Most authors attribute most accidents to driver dependent factors, which are thought to account for 60% to 90% of all traffic accidents (Ibid). 'The growth in numbers of motor vehicles is a major contributing factor in the rising toll of fatalities and injuries from road traffic crashes in poor countries' (Hague 1999: 212; McGrowder, 2008: 185; Nantulya 2002: 1139). Nantulya added that another explanation for the high burden of RTAs is

"Poor enforcement of traffic safety regulations in low income countries due to inadequate resources, administrative problems and corruption. Corruption is a huge problem in some countries, often creating a circle of blame the police, blame drivers and the public, the public blames drivers and the police, and drivers blame the police. Corruption also extends to vehicle and driver licensing agencies". (Ibid)

The existing literature in developing countries does not provide clear evidence on whether vulnerable groups of people are mostly affected by RTAs although it suggests that there is a relationship (Nantulya and Reich, 2003; Laflamme and Diederichsen 2000). This might have been hindered by the incompleteness of data on TRAs both in developed and developing countries. 'A study in Bangalore, India seems to provide some evidence for such a negative gradient in income' (Jacobs et al. 2004: 24).

As noted by (Peden and Sminkey 2004:67) 'economic costs are just the tip of the iceberg. For everyone killed, injured, or disabled by a road traffic crash there are countless others deeply affected'. Many families are driven deeper into poverty by the expenses of prolonged medical

care, loss of a family breadwinner, or the added burden of caring for the disabled (Ibid).

Oginni (2008: 226) further identified the specific risk factors such as 'uneducated and unlicensed drivers and riders, reckless driving, carelessness, drunkenness, lack of knowledge on road safety rules, driver's age, fatigue, unimplemented government policies, failure in law enforcement and corruption'. Furthermore the literature on RTAs has noted that poor vehicle conditions, poor road infrastructure and poor traffic management are some risk factors contributing to RTAs.

Road Traffic Injuries are modulated by human behavioural and environmental factors. Many studies (Bener et al., 2008a; Bener, Lajunen, Ozkan & Haigney, 2006; Bener, Ozkan & Lajunen, 2008b; Bener & Crundall, 2008c; Bener et al., 2007) have shown that human behavioural factors collectively represent the main cause of road traffic crashes and their remedial measures can go a long way to help prevent RTIs.

Road traffic injuries are the leading cause of death globally among 15-19 year-olds, while for those in the 10-14 years and 20-24 years age brackets they are the second leading cause of death (WHO, 2007a). The projected 40% increase in global deaths resulting from injury between 2002 and 2030 is predominantly due to the increasing number of deaths from road traffic accidents (WHO, 2007b) India already accounts for about 9.5% of the total 1.2 million fatal accidents in the world (Mondal et al., 2011b). In 2007, 1.14 lakh people in India lost their lives in road mishaps — that's significantly higher than the 2006 road death figures in China, 89,455 (Mondal et al., 2011a). One person dies at every 4.61 minutes in India for road crashes. Road deaths in India registered a sharp 6.1% rise between 2006 and 2007.

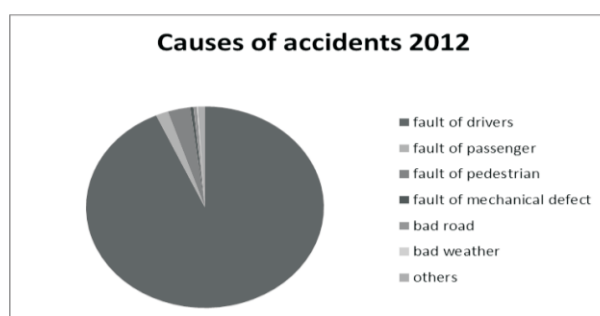
Objectives:

- To find out the major causes of accidents
- To analyze the severity rate of accidents
- To analyze the type of vehicle mostly involved in accidents

RESEARCH METHODOLOGY:

Data collection is based on secondary data. Data were available in detailed accidents in tamilnadu and Chennai from 1998-2012. And also make evaluation of causes of accidents with 2011& 2012. Data collections are done with the help of tamilnadu government website and DGP Chennai and daily newspapers of tamilnadu.

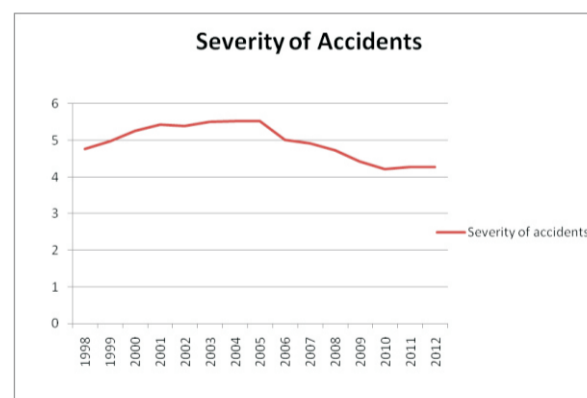
CHARTS AND DATA INTERPRETATIONS:



Source: Tamilnadu Road transport authority
Table: Severity of accidents in Tamilnadu:

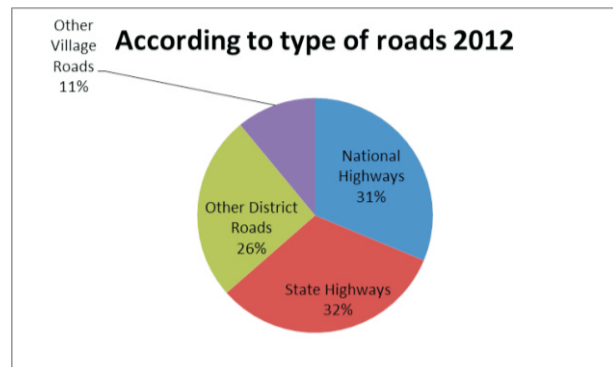
years	Tamil nadu		
	Total accident	No. of person killed	Severity
1998	46723	9801	4.767167
1999	48086	9653	4.981457
2000	48923	9300	5.260538
2001	51978	9571	5.43078
2002	53503	9939	5.383137
2003	51025	9275	5.501348
2004	52508	9507	5.523088
2005	53878	9760	5.520287
2006	55145	11009	5.009083
2007	59140	12036	4.913593
2008	60409	12784	4.72536
2009	60794	13746	4.422668
2010	64996	15409	4.218054
2011	65873	15422	4.271366
2012	67980	15900	4.275472

Source: Tamilnadu Road transport authority
[Severity of accidents = no. of person killed/ total accidents]



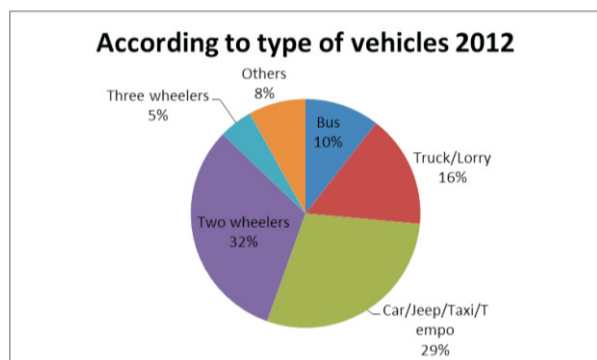
Source: Tamilnadu Road transport authority

Accidents according to type of roads in 2011 and 2012



Source: Tamilnadu Road transport authority

Accidents according to type of vehicles:



Source: Tamilnadu Road transport authority

Managerial implications:

In India 77.5% of accidents were fault of drivers but Tamilnadu reported in 2012, 93% of accidents caused by faults of drivers, it was 94% in 2011. Fault of pedestrian stands 3% and fault of passengers 1.5%, bad road shows only 0.5% rest of accidents stands mechanical defect and bad weather condition.

2012 Accidents reported 31% of accidents were reported in national highways, it was 33.6% in 2011. And 32% of accidents in state highways it was 31.7% in 2011. Other district roads and other village roads reported 25.5% and 11% respectively, it was 22.8% and 11.8% in 2011.

According to type of vehicles 10.5% accidents caused by busses in 2012 it was 12.6% in 2011. And 16% reported truck/lorry in 2012 & 2011, 29% of accidents caused by car/jeep/taxi/tempo in 2012 it was 28% in 2011. 32% of accidents reported causes of two wheelers but in 2011 it was only 30%. Three wheelers and others caused accidents 5% and 8% respectively in 2012; it was 6% and 8% in 2011.

Severity of accidents in Tamilnadu marked slowly down and not rapid changes. Enforcement works in 2009-2010 was by reported 110791; and 2010-2011 was 162180 cases filed traffic inspection. Also in 2009-2010 26% of candidates failed in driving test but it was 53% in 2010-2011. Drunken drive also falls down 3668 drunken drive in 2009-

2010 but it was 1955 in 2010-2011. Mobile phone driving increasing in following years.

Driving licenses cancelled/suspended due to drunken drive reported in 2011-2012 was 3486; it falls down from 2008-2009, 2009-2010, 2010-2011 respectively reported 9047, 6299, and 4104.

SUGGESTIONS:

Fault of drivers only reported for high rate of accidents, government shall make more enforcement work on drivers. Two wheelers is the mostly expected vehicle for accident

Drunken driving, over speeding, over loading, poor maintenance of vehicles and usage of mobile phones while driving are the major reasons for accidents. Sudden crossing by the pedestrian/ animal is also caused accidents. Not wearing seat belt and helmet is increases the severity of accidents.

Making a proper road safety programs is the best method to reduce accidents; creating awareness among people about accidents and reasons for accidents.

Developing emergency medical services through a 24*7 call centre with a dedicated common telephone number backed by ambulances. Make sure compulsory training program for before issuance of driving license. Developing highway patrol in national and state highways to find out the mistakes of drivers and making effective punishments. Make proper signals, way boards, and route maps in roads.

CONCLUSIONS:

Humans are unanimated, accidents are not made it happens unexpectedly. Creates severity not only financial level also in human lives. Drivers are plays vital role, they have to improve themselves and obey traffic rules. There is clearly a need for road safety education and it should be directed towards road users, who are frequently involved and injured in RTIs (e.g. students). An integrated programme of road safety education is suggested. State shall make proper rules and regulations and changes in traffic rules. And create good road conditions to avoid road accidents.

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