

# An Awareness Show: Vehicle Accident Root Cause Analysis in Tamilnadu

<sup>1</sup>S.Srithar & <sup>2</sup>N.M.Saravanakumar

<sup>1</sup>Assistant Professor, Department of CSE, RVS College of Engineering and Technology, Coimbatore, Tamilnadu (India)

<sup>2</sup>Professor&Head, Department of CSE, Vivekanandha College of Engineering for Women, Tiruchengode, Tamilnadu (India)

## ARTICLE DETAILS

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### Corresponding Author

Email: sss.srithar[at]gmail.com

## ABSTRACT

As per the global health organizations study report, 1.35 million peoples lose their lives every year due to a vehicle crash. The country like India's population growth dramatically increased over the years. The peoples only depend on vehicle transportation for travel across the places. But, vehicle crash while traveling is unacceptably unpredictable. The traffic department has given several awareness programs all over the places to avoid road accidents. There are several factors for vehicle crashes such as over speed driving, unplanned overtaking, drunk and drive, wrong side driving and traffic rules violation etc. In our survey, we are going to analyze the root causes of vehicle crashes from the statistical data. The survey is carried out with vehicle collision statistics in India-Tamilnadu. The analysis report will clear cut the primary root cause for better step action to the traffic department and people's awareness.

## 1. Introduction

The vehicle accident death and injury rates are gradually increased over the year due to motorization world. As per the world health organization's statistics mostly 5-29 age group adults and child are the killed by the road accidents [6][7] [9]. The vehicle crash fatality rate occupies the 8th rank in overall death rate statistics. In Worldwide, among 1,00,000 vehicles 64 deaths happen due to accidents for the past 15 years and it becomes a high rate in 2016. The vehicle accidents deaths are rates highly as 28% motorcyclists, 3% cyclists and 23% pedestrians. In every year 2.5% of deaths happen due to accidents. In African regions among 1,00,000 peoples, 26.6 peoples died whereas in south-east Asia regions around 19.8 peoples died [3] in road crashes. In 2017, totally 4,64,910 accidents happens leads to 1,47,913 deaths and 4,79,975 injuries in India. In India, the states like Uttar Pradesh,

Tamilnadu leads a first and second rank (Figure 1) in vehicle crash deaths as per 2017 data [3][4][1].

In Tamilnadu, the districts Chennai, Coimbatore leads a first two places in road fatalities. In 2017, more than 30,000 accidents registered in Tamilnadu, Kerela, Karnataka, Madhya Pradesh, Uttar Pradesh, and Delhi. In Tamilnadu totally around 65,562 crashes happens which is unacceptably higher. Through Worldwide every 24-second one deaths happen due to road traffic accidents. Especially in Tamilnadu region the accidents caused by two-wheeler, cars, and goods carriage vehicle rates as 38.73%, 28.60%, and 11.25%. Similarly, the fatalities caused by the above vehicles rates as 32.94%,24.72 and 15.51%. The cause like not wearing helmet fatalities rate decreased over 20% than 2016 due to strict traffic rules. Mostly the accidents happen in rush hours in morning session 6am-9am and 3pm-6pm.

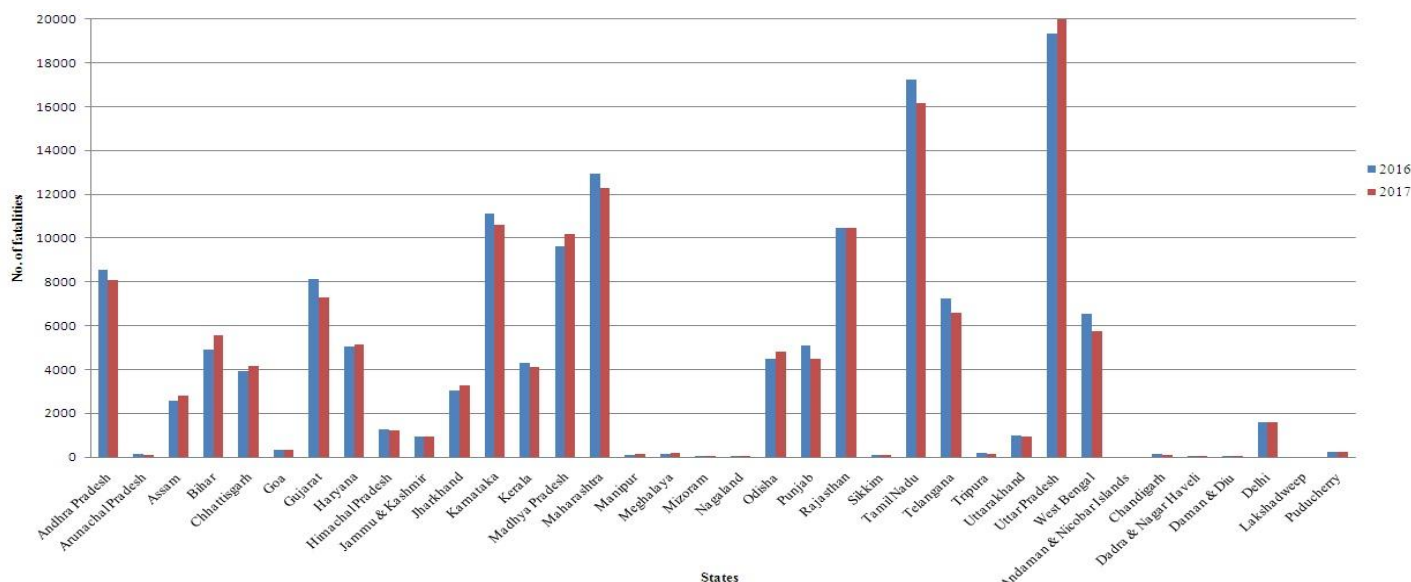


Figure-1: State-wise Road traffic accident fatality rate 2016 and 2017

**2. A survey: Vehicle accidents in India**

Today vehicle accidents become the primary cause of disabilities, injuries, deaths, and hospitalization. As per 2017 survey statistics, there are five primary causes of vehicle accidents. They are, exceeding the lawful speed, improper action of a driver, unplanned overtaking, drunk and drive, not wearing seatbelts etc [3][5].

**2.1 Traffic Rules violation**

The vehicle accidents mainly happen by the human error. The Indian government & Ministry of Transport and Highways department framed rules for vehicle driving. The violation of these traffic rules causes a vehicle crash leads to fatalities. The

government of India notified S.O.15522 (E) reference dated 06.04.2018 regulated the acceleration limit for the different vehicles and categories of roads. As per the regulation for motorcycle & carriage of goods vehicles, speed is limited with 80Kmph for expressway and 4 lane roads whereas the road with municipal limits restricted with 60Kmph. For three-wheeler vehicle, the speed is limited with 50 Kmph for both 4 lane roads and municipal limit roads. The vehicle contains 8 seats for carriage of passenger speed limited by 120 Kmph for expressways and 100Kmph for 4 lane roadways. The Figure (2) representation says more than 70 % of the accidents happen due to uncontrollable speed [2].

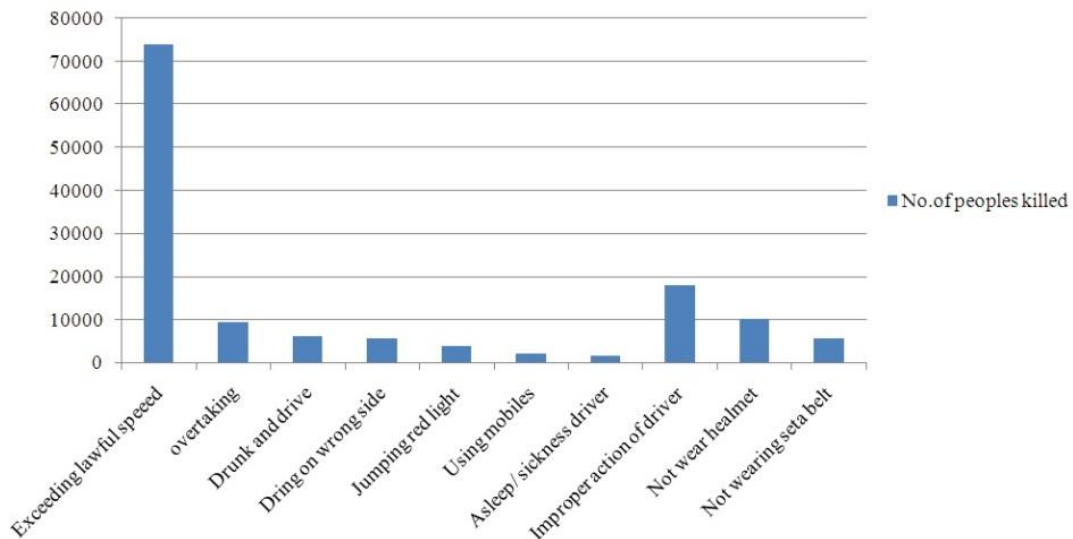


Figure 2: Root cause analysis of accident analysis in India 2016

**2.2 Seat belts and Helmets**

The accidents are unpredictable but we can take precaution measures can take before riding a vehicle. The Use of helmets and seatbelts will not prevent the accidents but it can save a life during an accident. In 2017 totally, 48746 two-wheeler road deaths happen whereas not using Helmets death rated as 73.8% [3].

**2.3 Usage of mobile phone**

The usage of mobile usage will cause a serious effect with 6.2% of vehicle accidents leads to 6.5% of fatalities [3].

**2.4 Road deaths by age groups**

The persons who completed 18 years old are eligible to ride vehicle as per the government regulations. The license is issued by the transport authority after passing the driving test. The Figure (3) says age group of 18-35 years mostly died in 2016 statistics [2].

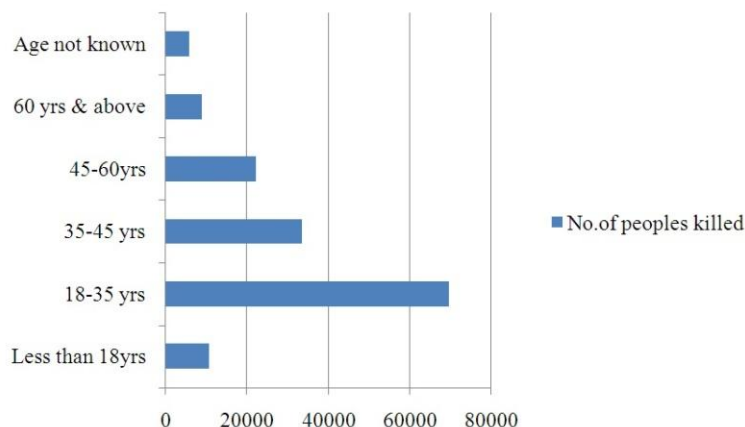


Figure 3: Road deaths by age groups in India 2016

### 2.5 Types of collision

The vehicle to vehicle crash happens in a different manner like face to face hit, hit from the back, overturn hit, fixed object hit, animal hit etc. As per 2017 survey (Figure 4), 87068

accidents happen in which 18.7 % of accidents are direct face to face hit [3].

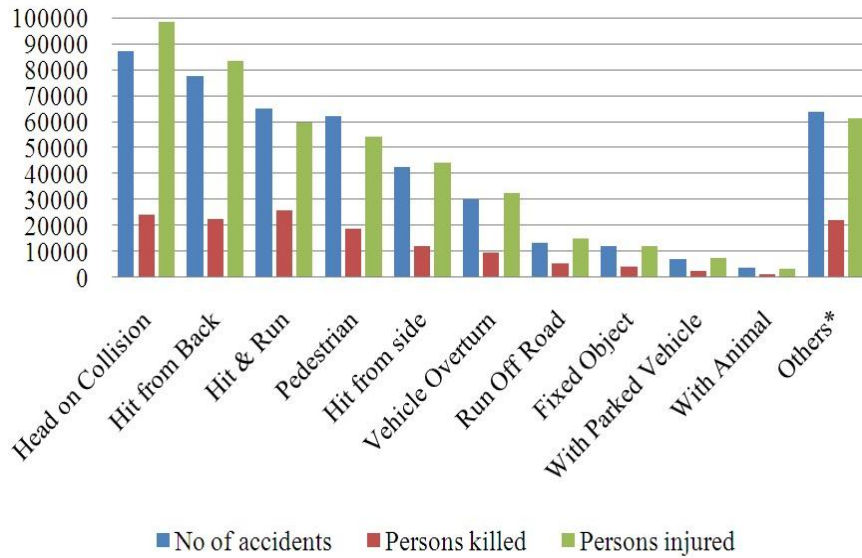


Figure 4: Type of collision with accidents, fatality, injury rates in India 2017

### 3. A survey: Vehicle accidents in Tamilnadu

In India, the states Uttarkand and Tamilnadu leading first & second leading vehicle crash fatality rate in 2017. The rate of fatalities increased over 1000+ in Chennai and Coimbatore (Figure 7). Overall in India, the state Tamilnadu involves 10.9% of share in vehicle crash fatality rate. The rate of accidents increased over the last 5 years (Figure 5). The currently recorded data says that the root causes of accidents are fault drivers. In the year 2017 around 63705 accidents registered by the fault of the driver.

### 3.1 Root cause for Accidents

In 2017 Tamilnadu survey, Over 80% of the vehicle accidents happen due to traffic rules violations which are segregated as follows (Figure 6).

- Over speed driving
- Usage of mobile phone
- Drunk and driving
- Red light jumping
- Traffic rule violation
- Not wearing helmets

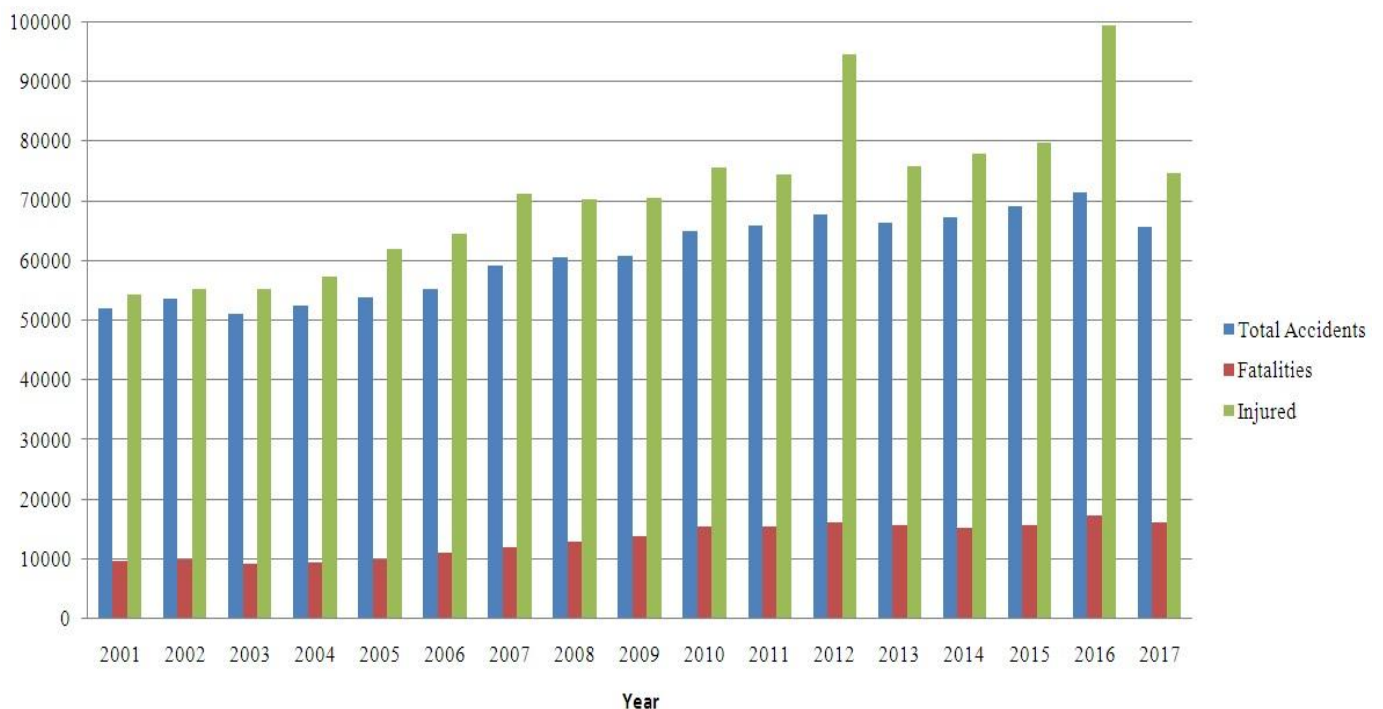


Figure 5: Accident details in Tamilnadu 2001-2017

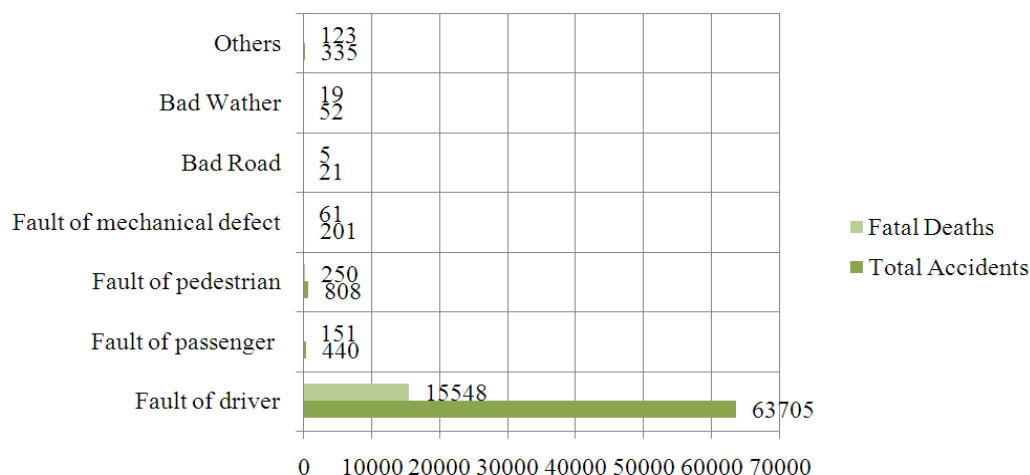


Figure 6: Accident causes in Tamilnadu 2017

**3.2 Precaution measures taken in 2017**

There are several prevention methods [8] seriously followed by the traffic department to minimize the accidents. Some of them are,

- Awareness programs periodically conducted in schools, colleges, public sectors
- The vehicle riders must carry an original driving license
- Spot fine for not wearing the helmet, traffic rule violation
- Cancellation of driving license for drunk and drive
- Speed breakers in near schools, colleges, and hit point areas

**3.3 TN Govt. Transport department oath 2017**

The traffic department has taken plenty of prevention oaths [6][7] to avoid traffic accidents. They are listed below:

- To increase more buses in peak hours
- Continuous monitoring of driver behavior
- The drivers awarded with cash prizes for not cause any accidents
- Arranged free refresher programs
- Emergency ambulance facility is 24\*7 offered in all areas and government hospital takes care doctors available in 24\*7.
- The traffic rules are strictly followed and spot punishments were given who overtake the traffic rules

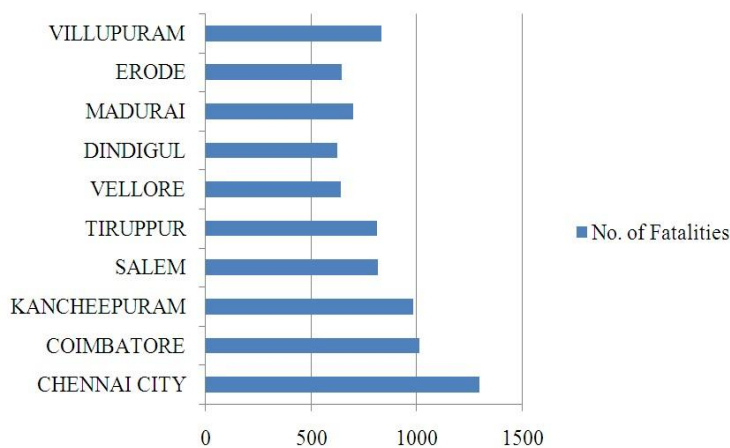


Figure 7: Top 10 most vehicle accident fatalities in Tamilnadu 2017

**4. Conclusion**

The goal of this survey is to give a certain awareness message to the peoples for a safe life. The road accidents happen mainly because of violating the traffic rules. Over 70% of the uncontrollable high-speed vehicles fall into an accident. Nowadays, the vehicle manufacturing company’s competition they set the advertising parameter as speed, model and cost. The traffic department takes care of the parameter speed into serious consideration before release it in a market. Otherwise, the vehicle with automatic speed controller needs to fix in all

vehicles expects emergency vehicles like an ambulance. A lot of research is already documented for giving certain solutions to road safety. The Global health organization and government of all countries will take it forward to implement the vehicular ad-hoc network projects for people’s life safety. The government alone will not give the right solution for all safety issues. Instead, following rule-based driving by thinking their family will be a better choice for making a tremendous change in road safety.

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