# A Comparitive Study on Road Traffic Accident in Kerala and Tamil Nadu: A Secondary Data Analysis

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## Abstract

**Background:** Injuries are neglected significant public health problem worldwide which; requires organized efforts for prevention. The vehicle population of India constitutes only 1 percent of the world but accounts for nearly 10% of the total accidents in the world. Globalization has led to increased vehicular movements leading to unsafe roads.

**Materials and Method:** This study aims at providing, comparison between Tamil Nadu and Kerala on the basis of Injury rates, on type of vehicle involved, type of roads and causative factor leading to road traffic crashes. In order to understand the severity of accidents and trends over time, we have collected data from various state and national reports published on various forums regarding the accidents in India, Tamil Nadu and Kerala and analyzed the data to see the trends and number of injuries over the past 3years.

**Results:** Between the two states,Tamil Nadu has shown high injury rates comparatively to Kerala over the period of 3 years. Though there are measures in place, somewhere there is a lack in proactive measure to stop this modern epidemic of motor vehicle trauma which shows an increase in accidents in Tamil Nadu than in Kerala.

***Keywords:*** *Road Traffic Injuries, Kerala and Tamil Nadu, Injury rates, RTA Comparison.*

## Introduction

Road traffic injuries manifest greater part of morbidity and mortality rates in India.There are not many studies done in Indian background about the realistic magnitude, risk factors and impact of road traffic injuries,and ways to prevent and reducethe impact of road crashes. Kerala and Tamil Nadu is one of the best states in the country which has taken the initiative to have a full-fledged road safety policy to protect the lives of its citizens(1). This review aims at providing an overview comparison in road traffic accidents between Tamil Nadu and Kerala based on type of roads, type of vehicle involved and cause wise comparison, also describes on the injury rates between two states.This review is written in the view of presenting the road traffic accident scenario which can help various stakeholders to frame policies.RTA involves high human suffering and socioeconomic prices in terms of premature deaths, injuries, loss of productivity(2). Globally the foremost productive cohort of the community young adults aged between 15 and 44 years constitutes more than half of the people killed in traffic crashes.

**RTA-India Scenario:** In India, statistics over the years have shown, greater than 130,000 people have died on Indian roads, giving India a honor in topping the world's list of fatalities due to road traffic injuries. Poor enforcement and non-existent of injury prevention laws and programs have led to this exaggerated situation in Indian scenario.Majority of dataportrays, drunk and

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driving is the major cause of death, which is responsible for almost 70 percent of death in cities like Delhi and Mumbai[3].Total number of road accidents for the calendar year 2016 was reported to be 4,80,652 causing injuries to 4,94,624 and claiming 1,50,785 lives in India. Comparing 2015-16, the numbers of road accidents and injured victims have been declined in 2016 by 4.1 percent and 1.1 percent respectively. That is on an average 55 accidents and 17 deaths every hour have occurred on Indian roads[4].The number of road accidents relative to population, registered vehicles and road length are on a general declining trend from 2010, but the number of persons killed per lakh population has not undergone similar decline in recent years, but hiked to 11.9 in 2016, after an initial decline from 11.8 in 2011 to 11.2 in 2013[5].It is projected that road traffic related injuries will surge to the third position by the year 2020 among the leading cause of world's disease burden. In order to cope up with this growing issue, there have been actions taken by countries internationally to implement road safety rules by The Decade of Action for Road Safety (2011–2020).The Sustainable Developmental Goals targets,to reduce the road traffic crashes and its related injuries to half by the year 2020[6][7].

**RTA- Tamilnadu Scenario:** In Tamil Nadu, the number of road traffic accidents and its related death and injuries has been in a constant rise. According to road statistics data from the Tamil Nadu State Transport Department have shown that, road traffic accidents in State have been doubled in 2016 comparatively to the year 2000.The total number of accidents in 2000 was 48923 and in 2016 it raised up to 71431[8].

**RTA - Kerala Scenario:** In Kerala, the number of road traffic related death and injuries have been in a constant rise.Out of 4, 34,814 road accidents in India for the year 2015,39,014 road accidents have occurred in the state of Kerala (which was contributing 7.8 percent out of total share of 86.7 percent of road traffic accidents among the top 13 states in India)[4][9]. Out of total persons injured in road traffic crash (44108), 43253 road traffic injuries have occurred due, to the fault of the driver while driving the vehicle. Among the vehicles, two- wheelers have been reported to be the major cause of road traffic accidents among all other vehicles. As many as 1474 fatal cases were reported in the year 2016 due to two – wheeler.[9][10].

**Comparison between Kerala and Tamil Nadu-Overview:** Among,top thirteen states in India,Tamil Nadu ranks first,with 71431 accidents (which was 14.9 percent out of 86.5 percent of total number of road accidents reported) and Kerala ranks fifth in the list with 39420 accidents (which was 8.2 percent out of 86.5 percent of total number of road accidents reported) [8][9].A comparison of states unfolds that, top 13 states accounted for 83.7 percent of share in road traffic fatalities in India during the year 2016,of which Kerala did not happen to appear in the top 13 list for road traffic fatalities accounting for 4287 out of 1,26,159 total fatal cases in India. But,Tamil Nadu ranked 2nd with 19320 fatal accidents among the total fatal accidents reported in India[8][9].According to the severity of accidents between the cities of Kerala and Tamil Nadu, Madurai is a district in Tamil Nadu,that has a high severity index of 23.5,followed by Thiruchrapalli with 21.9,Coimbator with 21.3 and Chennai has severity index of 15.8.In Kerala the severity of accidents in almost all the districts were minimal compared to Tamil Nadu [with the maximum severity of accident being reported in Kollam,Kerala (12.3)][8][9][4]

**Chart I Injury Rates (Per 10,00,000 Population) in Tamil Nadu and Kerala between 2014-2015 And 2015-2016:** If we look into the road accidents statistics data from state transport department, which consisted of data on total number of injured persons and number of vehicle population, we were able to derive at the injury rate for both Tamil Nadu and Kerala.With the data on injury rate for a period of two years,Tamil Nadu has almost a constant injury rate within a period of two years, whereas Kerala has a sudden hike in injury rate to 33.8 (2015 -16) although the number of registered vehicle for the state was less comparatively to the previous year (2014 – 2015).

**Type of Vehicle Involved in Road Traffic Accidents between two States - Comparison:** By comparing the two states on the basis of vehicular category, total no of accidents inclusive of all categories of vehicles, Tamil Nadu ranked first among the two states with a total number of 71,431 and Kerala with 44,108 and among which **two wheelers topping** the list in both the states[8][9].In Tamil Nadu the total no of accidents recorded by **two – wheelers** according to the calendar year 2016 was 27,815 which was nearly two times higher comparatively to the accidents caused by two – wheelers in Kerala, which was reported to be 14,849. Followed by two wheelers, car/jeeps/taxi led to road traffic crashes,with Tamil Nadu having 19,797 car/jeep/taxi crashes which was almost 9 times more

compared to Kerala,were in the number of accidents by car/jeep/taxi was recorded to be 10,975[8][9].

**Chart II Percentage Comparison on No of persons killed by two-wheeler (PER 100 Vehicles) during the year 2016:** From figure 2,the total number of persons killed in the accident per 100 two wheelers in India is 27.3 percent (40779), of which Tamil Nadu records 12 percent of person killed in accidents per 100 two wheelers (4961) and in Kerala per 100 two wheelers 3 percent were killed (1280).Compared to Kerala, persons killed per 100 two wheelers is 4 times more in Tamil Nadu.

**Type of Road Involved In Road Traffic Accidents between Two States - Comparison:** Over the years only marginal changes have happened in terms of percentage share in number of road accidents and number of persons killed within various categories of roads. The share of **National Highways** was always been high in all the three parameters (total no. of accidents, number of persons killed and in no of persons injured)[4].The total number of accidents occurred in National Highway in India is reported to be 29.6 percent out of which Tamil Nadu accounted for 15.8 percent(i.e. 22,573)of total accidents in National highway which was almost 9 percent more when compared to Kerala which was reported to be 6.4 percent (i.e., 9,209)[8][9].The number of accidents reported in State highway in India was 25.3 percent, out of which Tamil Nadu accounted for 19.2 percent of accidents in State Highway,which was almost 4 times more when compared to accidents reported in Kerala (5.8 percent),2016[8][9].

**Chart III Percentage Comparison on No of persons killed based on the road type during the year 2016:** From figure 3,Tamil Nadu has a surge in total persons killed in fatal accidents among all the three types of roads compared to Kerala for the year 2016. (These percentages are obtained by taking total number of persons killed in respective Indian roads in the denominator)

**Cause Wise Comparison between the States:** Road accidents are multi-causal[4].Based on the data reporting system, the factors responsible for accident are reported on the basis of subjective judgment.The fatal accidents have been reported to be 84 percent (4,03,598) due to the fault of the driver driving the motor vehicle in India for the calendar year 2016.The major cause of accidents in Tamil Nadu and Kerala was due to the fault of the driver and in Tamil Nadu the second most cause of accident was due to fault of the passenger other than driver whereas in Kerala the second most cause was due to other conditions that has led to accidents[4]. Total number of accidents due to drivers fault in Tamil Nadu was reported to be 67,683 of which 15.031 were fatal accidents, Among fatal accident, 16,101 persons were killed. In Kerala, 38,189 total accidents were due to drivers fault,of which 3,457 was fatal accidents and 3,659 people were killed in fatal accident for the year 2016[4][8][9].On comparison basis, 80.3 percent of people were reported to be killed in fatal accident due to drivers fault in 2016, in which Tamil Nadu had 13.2 percent of person killed,which was almost 4 percent more than Kerala for the year 2016[4].

**Chart IV Percentage Comparison on total no of persons killed in Tamil Nadu and Kerala based on non-adherence of traffic rules:** From figure 4,Tamil Nadu has maximum number of total persons killed in accidents,exceeding lawful speed and in driving in wrong side compared to Kerala for the year 2016.(These percentages are obtained by taking total number of persons killed due to non-adherence of rules in India,has denominator).

**Chart V Percentage Comparison on No. of persons killed due to Non – Use of Safety Device between two states in 2016:** From figure 5,Tamil Nadu has maximum persons killed in accidents among non-use of safety device compared to Kerala for the year 2016.Number of persons killed in Tamil Nadu due to non – wearing of helmet is 11 percent more than in Kerala and the number of persons killed in Tamil Nadu due to non – wearing of seatbelt is 5 percent more than in Kerala (These percentages are obtained by taking total number of persons killed due to non-use of safety device in India,has denominator).

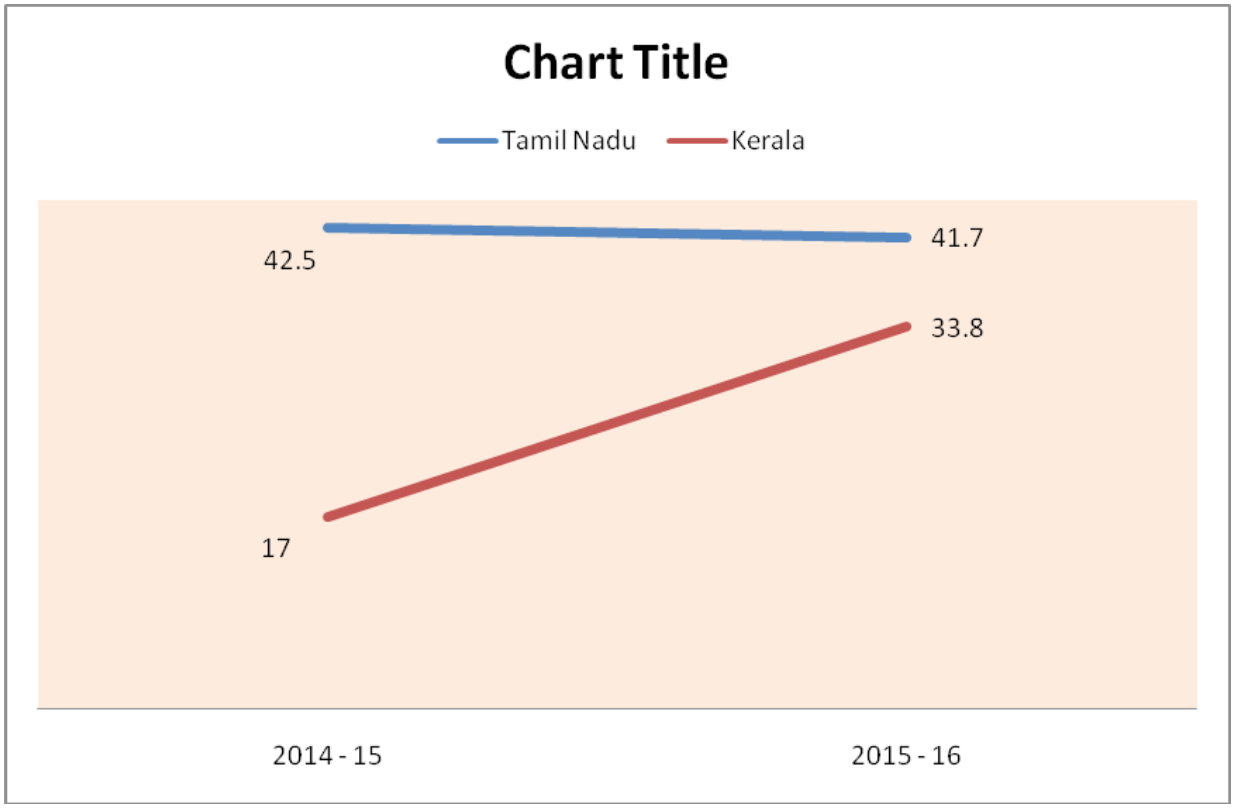


**Chart I: Injury Rates (Per 10,00,000 Population) in Tamil Nadu and Kerala between 2014-2015 and 2015-2016**

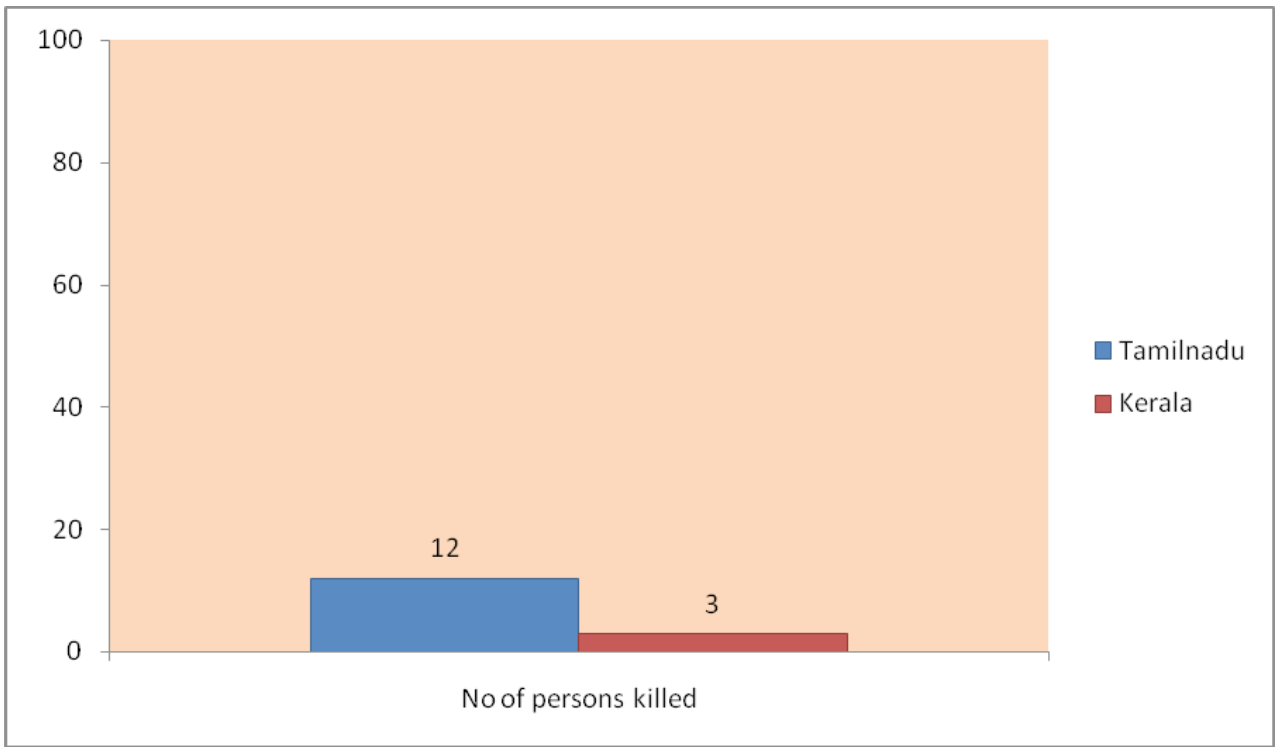


**Chart II: Percentage Comparison on No of persons killed by two-wheeler (Per 100 Vehicles) during the year 2016**

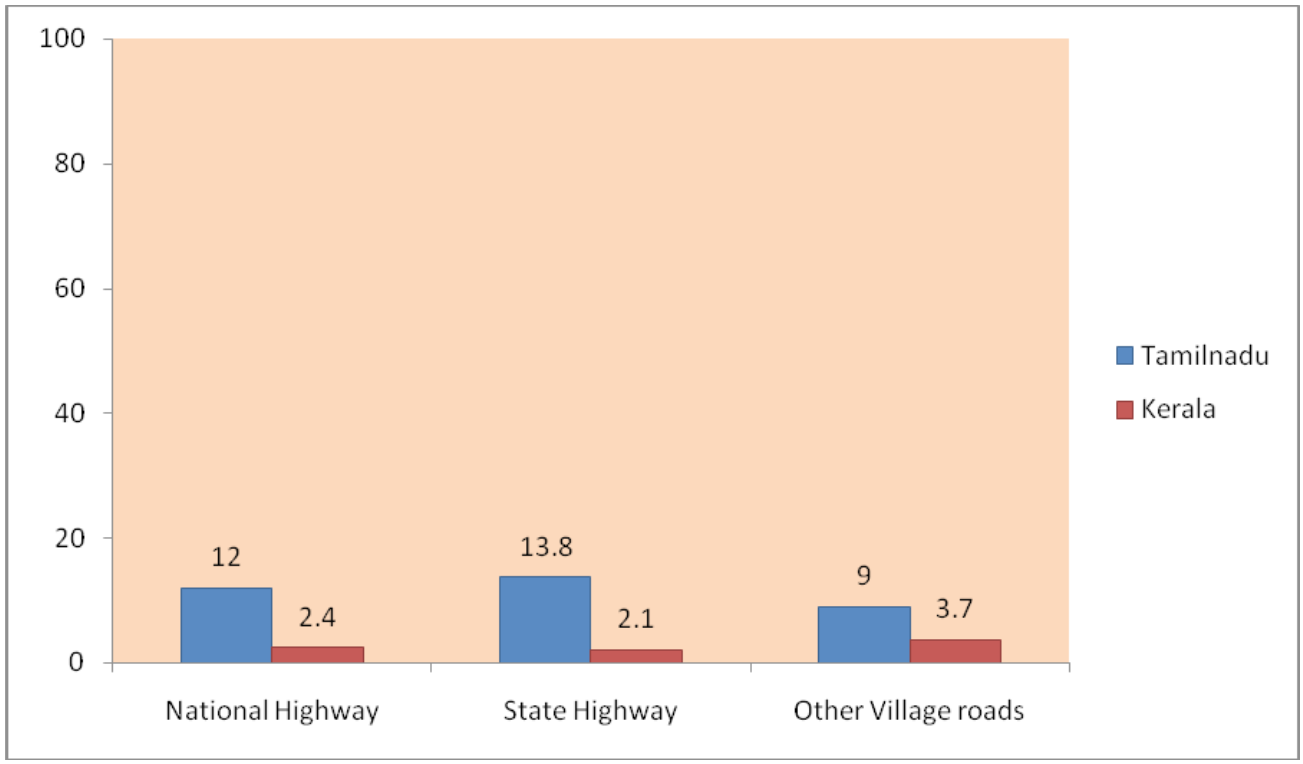


**Chart III: Percentage Comparison on No of persons killed based on the road type during the year 2016**

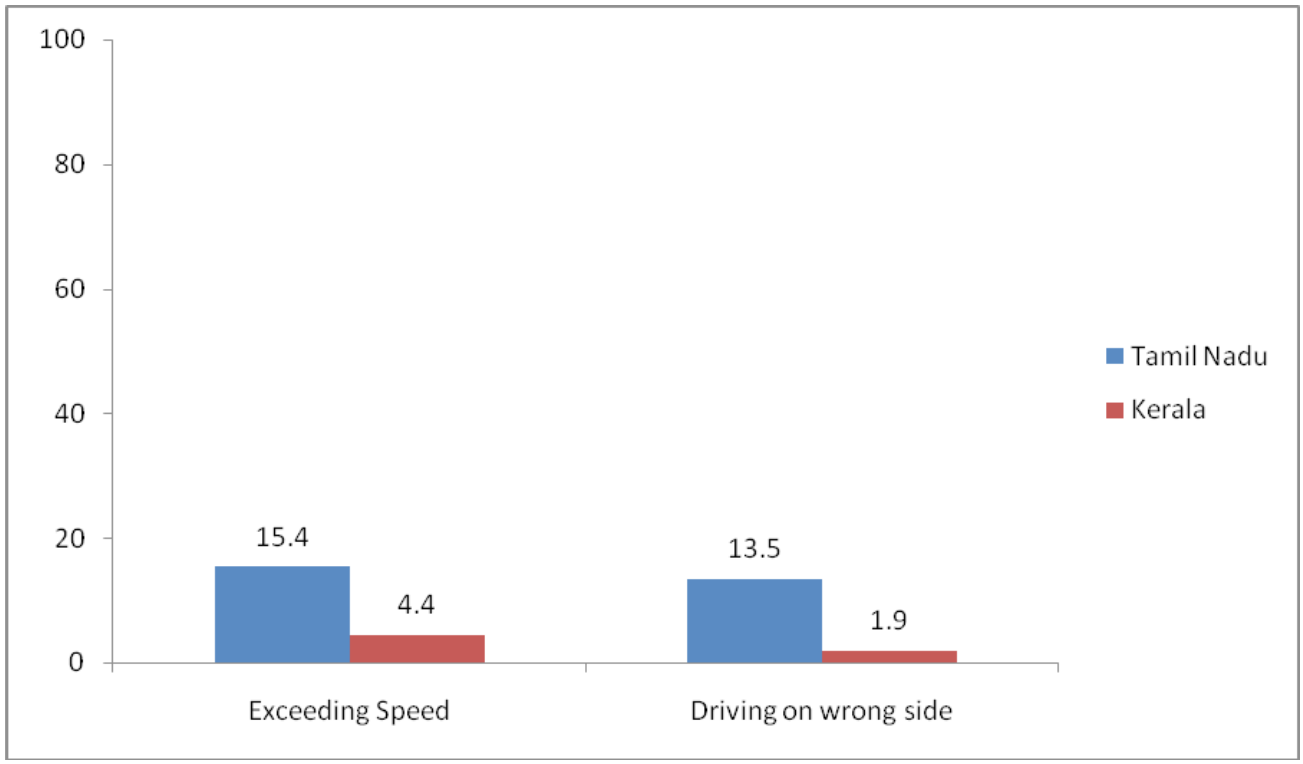


**Chart IV: Percentage Comparison on total no of persons killed in Tamil Nadu and Kerala based on non-adherence of traffic rules**

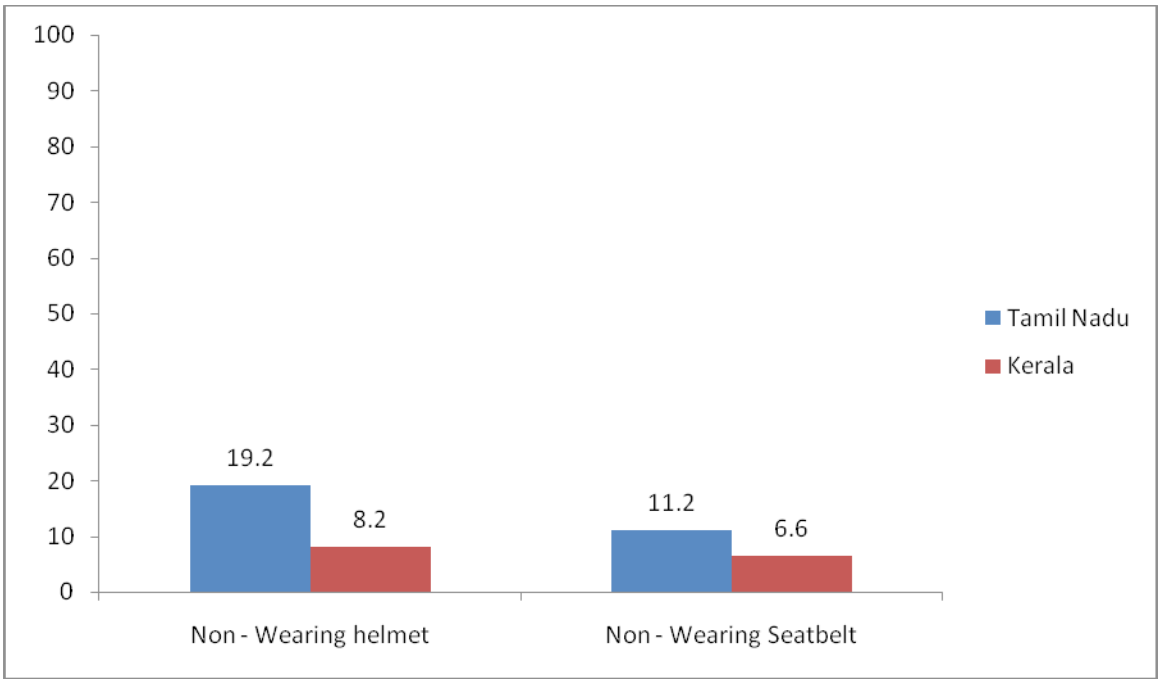


**Chart V: Percentage Comparison on No. of persons killed due to Non – Use of Safety Device between two states in 2016**

## Discussion

The mounting toll of road accidents, with increase in fatalities compared to previous years in India, especially in Tamil Nadu is in surge, which puts forth to continue the studies and research on road accidents and its preventive measures,which is an urgent matter. The global transport and road system will continue to develop and will undergo changes in the next 20 to 30 years, due to globalization, urbanization and declining natural resources[11].Preventive measures are indeed a requirement to mitigate the growing incidence of accidents and also to condense the growing epidemic of mortalities and morbidities due to road traffic accidents. [12].The statistics projected in this study shows only the fatalities occurred at the scene of the accident and not the delayed mortality,since the data regarding the same is not available.In order to cut down these figures, care must be concentrated on the accident victim from the accident spot to the emergency ward and the ambulance must be provided with modern equipment for a better chance of survival. Regional services should also be made available. A study led by Dr.S.Krishnan et al, have portrayed that road users behavior has been found to be the primary reason for the accidents in 70 to 90 per cent of cases.[13]Another study conducted by Alagappan Meyyappan et al, in Chennai city, out of 1835 trauma victims, 1806(98.4%) were due to road traffic accidents, of which two-wheelers accounted for 66.4 per cent and four-wheelers accounted for 21.6 per cent[14].Education of public, regarding the road traffic rules and regulations has to be strictly enforced.Causative factor, that could be eliminated is poor road system and also the lack of yearly inspection of the vehicle, is another aspect that has to be given attention, as the old and the disused vehicles are more likely to cause injuries on their passengers.There cannot be enough emphasis placed immediately on the need for these measures to control and mitigate the mortality, morbidity and disability related to morbidity and damage to the property and the person(his/her family)who are indirectly getting affected due to the Road Traffic Accidents.Need for these actions becomes more apparent,when we realize the victims mostly affected are young age group, a fact that has to be stressed and given attention.

## Conclusion

Though India constitutes around 1percent of the vehicle population in the world, the percentage of road traffic fatalities from India is nearly 10 percent.There have been many initiatives taken by the Government of India to save the precious life of citizens by creating “safer roads for everyone”, Tamil Nadu Government

with a vision to prevent and reverse the increasing trend in the number of accidents, number of deaths, number of injuries through adoption of comprehensive measures and by providing Road Safety policy covering Engineering, Education, Emergency care and execution of social control.On the other hand stern measures, intelligent enforcement and sustained efforts of law have quite helped the state of Kerala to reduces the road traffic accident related injuries and death comparatively to Tamil Nadu to an extent.From this it is indicated that, although there is Road traffic safety measures and funds, Emergency Accident Relief Centers and Compensations to Road Accident Victims, there is a lack of proactive measures to stop this modern epidemic of motor vehicle trauma amidst Globalization and thereby increased vehicular movements.

**Conflict of Interest:** No conflict of interest

**Source of Funding:** Self-funding

**Ethical Clearance:** Taken from Institutional ethical committee of SRM School of Public Health, Kattankulathur, Tamilnadu.

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