



# A SYSTEMATIC REVIEW ON ROAD TRAFFIC ACCIDENT: CAUSES AND CONTROL MEASURES

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## Abstract

Road traffic accidents are considered as the most important health concern to the general public, it results numerous injuries and deaths worldwide. India is the one of the developing countries, where the rate of traffic road accidents are more than other critical fatalities. This paper reviews various factors and statistics related to road accidents occurred in various countries and also studies different control measures suggested by the researchers. The study interested to forecast the magnitude of road traffic accidents for the future, so that decision makers can make appropriate decisions for precaution. This study also provides an assessment of road traffic accidents in India and its impact based on total registered cases in 2021. The universe of this study was all states of India. This study will also create awareness and help the Government to minimize the road traffic accidents. The researcher has taken secondary data for this study. The study has also tried to pick up the scenario of road traffic accidents and its tremendous situation has also been observed. The findings of this study analyzed that the general trends of road traffic accidents (RTAs), where deaths and injuries increased gradually. Although the number of RTAs and deaths observed decreasing trend in recent years, the ratio of number of deaths to accidents increased significantly. The road traffic accidents data reveals that 1130 accidents and 422 deaths occur in every day while 47 accidents and 18 deaths occur in every hour. The empirical study in this area is the need of the hour for preventing the victim's distress and road accidents in near future.

**Keywords:** Reported cases, Major causes, Control measures, Victims etc.

## Introduction:

Road traffic accidents can be called as perennial disaster, as they have claimed far more lives than any of the natural disaster. Accidents are not natural but they are caused, it is a common saying in the area of traffic safety. Road safety status is the reflection of traffic culture and it is extremely poor in India (Desai et al., 2011). The major aim of this work is to collect the empirical details and various important statistics related to the road accident severity and the measures to reduce RTAs.

Safety can be improved by successfully correlating frequency of accident occurrence and severity of the causative variables. RTAs can be reduced through proper education and promotional involvement that encourages the use of safety equipment's. Not much is known about the effect of safety education programs and driver education programs (Muthusamy et al., 2015).

This work will give a wider analysis of causes and frequency of accidents occurring in leading cities of the world. Also, an analysis was made to prevent the same in order to improve the socio-economic factors of a country. Road safety continues to be a major developmental issue, a public health concern and a leading cause of death and injury across the world.

According to World Health Organization, at least one out of 10 peoples killed on roads across the world is from India. The cost of road accidents is borne not only by the victims and their family, but by the economy as a whole in terms of untimely deaths, injuries, disabilities and loss of potential income.

This study indicates that major of accidents have not been identified till date in a proactive manner, that is the voice of the vehicle user which involved actively or passively in an accident is not heard. Such factors have never been studied among vehicle users in developing countries. While, various extensive studies have been done on demographic and behavioral dimensions of road traffic accidents, but very few studies have been done related to location of ambulance strategically; It also indicates that very less work has been done till date to classify locations for their potential to cause an accident based on vehicle users' perception.

The researcher has proposed to find the factors causing road traffic accidents in a proactive manner (prior to occurrence of the incident) with specific reference to various categories of vehicle users, determine the extent of presence of location specific factors and to classify locations for their accident proneness in a developing country. Identifying accident prone locations will in turn help in strategic positioning of ambulance. These all works are very important for developing countries like India, where population is high, growth in the number of vehicles is exponential and the number of road traffic accidents are on the increasing trend.

Road accidents are one of the major causes of death in the world, where India ranks 1<sup>st</sup> in the number of road accident deaths across the 199 countries reported in the World Road Statistics, 2018 followed by China and USA. Unfortunately, more than 90% of road traffic deaths occur in low and middle-income countries, even within high-income countries, people from lower socioeconomic backgrounds are more likely to be involved in road traffic crashes. As per the WHO Global Report on Road Safety 2018, India accounts for almost 11% of the road accident-related deaths in the World (Road Traffic Injuries, 2022).

According to World Health Organization, every year the lives of approx. 1.3 million people are cut short as a result of a road traffic crash. Between 20 and 50 million people suffer non-fatal injuries, with many incurring a disability as a result of their injury. Road traffic injuries cause considerable economic losses to individuals, their families, and to nations as a whole.

These losses arise from the cost of treatment as well as loss of productivity for those killed or disabled by their injuries, and for family members who need to take time off work or school to care for the injured. Road traffic crashes cost most countries 3% of their GDP (Mohsin, 2022).

The total number of registered vehicles in India is 29,71,90,000. While the population of the country is 140 million which is 2<sup>nd</sup> top most populated country in the world after China. In India, the majority of road accidents occur due to over-speeding.

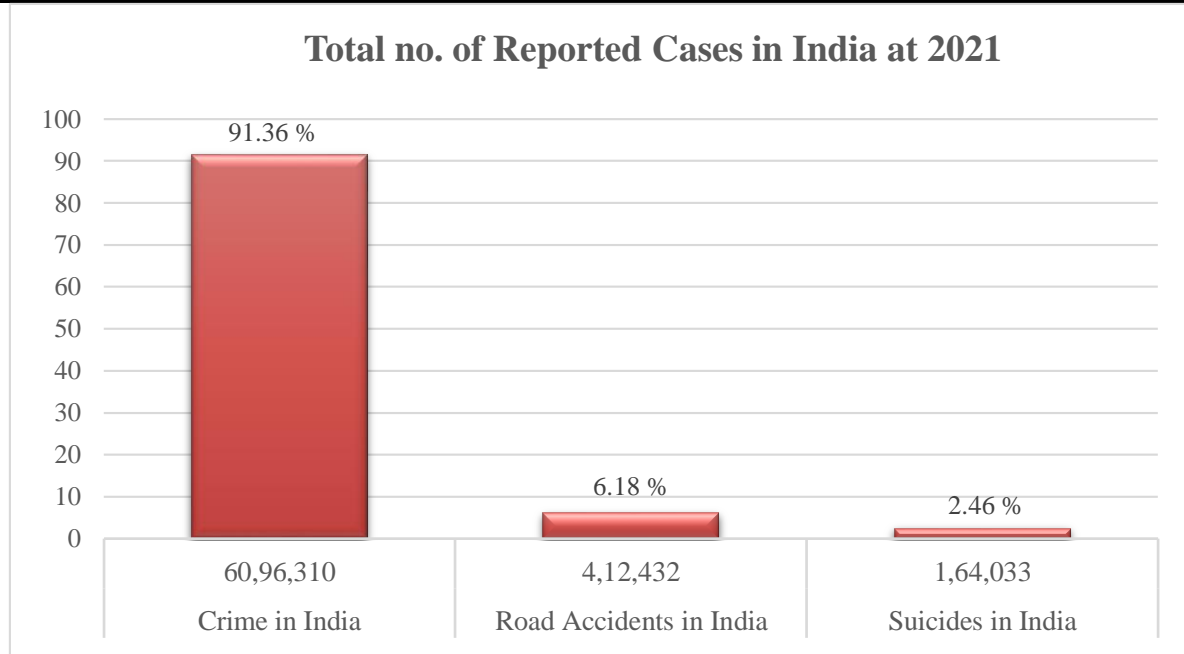


Fig. 1: Total no. of reported cases in India at 2021

This Figure shows that India records a total number of 66,72,775 cases in 2021 which covers crime in India, Road accidents in India and Accidents & suicide in India etc. Whereas, Crime in India covers 60,96,310 number of cases; Road accident covers 4,12,432 number of cases and Number of Suicide reported are 1,64,033. According to these cases approximately a total number of 3,18,005 peoples died in India every year. Road accidents in India constitute the 2<sup>nd</sup> most reason for a crime against the human body which covers 1,53,972 deaths and causes injuries to 3,84,448 persons.

During the year 2021, a total no. of 4,12,432 road accidents have been reported in the country, claiming 1,53,972 lives and causing injuries to 3,84,448 persons. Unfortunately, the worst affected age group in Road accidents is 18-45 years, which accounts for about 67% of total accidental deaths. The states like Madhya Pradesh, Karnataka, Kerala, Tamilnadu, and Telangana with highest share of accidents and fatalities in 2021 (Road Accidents in India, 2021).

The issue of road safety becomes even more important for India, having one of the largest road networks in the world. the unprecedented rate of motorization and growing urbanization fueled by high rate of economic growth have compounded the problem. The road traffic accidents data reveals that 1130 accidents and 422 deaths occur in every day while 47 accidents and 18 deaths occur in every hour.

These are various reasons which are effectively useful for the reductions in the number of crashes and injuries by road accidents i.e., governing traffic rules, maintaining speed limits, use of seat-belts, use of helmets, making vehicles more protective, speed alarming notification to the nearest police patrolling vehicle and formulating & implementing transport policies can be encouraged for the proper safety of the public.

This kind of work is very important for developing countries like India where the population is high, growth in the number of vehicles is exponential and the number of accidents is on the increasing trend. The use of GIS, Remote sensing, and GPS by the traffic police department can also help them to monitor the blackspot regions, traffic congestion, ambulance location, patrolling team and it can be also located the vehicle that met with an accident.

### **Nature and Scenario of Road Traffic Accidents in India:**

Nature of accidents or collision types at aggregate national level data shows increase in 2021 compared to 2020. From the above analysis 'Hit from Back' accounted 21.2% of cases which covers largest share in total accidents, while total number of persons were killed up to 18.6% during 2021; followed by 'Head on Collision' accounted 18.5% and the persons were killed up to 17.7% respectively. Head-on collisions are known to occur on roads with narrow lanes, sharp curves, unseparated lanes for two-way traffic and also busy stretches. The other major types of collision which caused death are 'hit & run' accounts 16.8% of cases; 'Hit

from side' accounts 11.9%. The Motor Vehicle Amendment Act, 2019 provides for enhanced rates of 2,00,000 Rs on the death of a victim in Hit and Run as against 25,000 Rs earlier.

A hit from the back or a rear-end collision occurs when a vehicle crashes into the one in front of it. Common factors contributing to rear-end collisions include driver's lack of attention or distraction, tailgating at junctions, panic stops and reduced traction due to wet weather. Other categories like 'Run' off the road could happen due to loss of control by the driver due to excessive or inappropriate speed, distraction, misjudging curve, attempting to avoid collision with another road user or an animal.

According to Ministry of Road Transport and Highways, over speeding alone accounts for the maximum share of road accidents with 71.7%, 69.6% of deaths from total road accidents and 72.9% of injuries from total road accidents injury record. Driving on wrong side is the second most important cause accounting for 5.2% of the road accidents during 2021. While other conditions i.e., Dangerous and careless driving, overtaking, drunken driving/consumption of alcohol & drugs, jumping of red light and use of mobile phones taken together accounted for 23.1% of road accidents which led to 35,567 deaths and left 88,807 persons injured.

Besides, only 2.6% of road accidents were due to poor weather conditions. During 2021, driver's fault was 77.5% and it was the single most important factor responsible for road accidents (Road Accidents in India, 2021). During 2021, In India these are the top five states who covers highest no. of total road accidents such as, Tamil Nadu consists highest no. of road accident cases with 55,682 (13.5%) and Madhya Pradesh consists 2<sup>nd</sup> topmost position which accounts 48,877 (11.8%) no. of road accidents, Uttar Pradesh with 37,729 (9.1%) cases, Karnataka with 34,647 (8.4%) cases, and Kerala with 33,296 (8.1%) accidents. Hit and run road accident itself constitutes 34% from the total road accidents record in the state of Madhya Pradesh.

### **Objectives & Methods:**

The objectives of the study are as follows:

- To access the road traffic accidents scenario of India.
- To suggest holistic control measures for prevention of road traffic accidents.

The present proposed study has adopted a mixed method of research. It attempts to explore nature of accidents and their causes. The universe of this study was all states of India. This study will also create awareness and help the Government to minimize the road traffic accidents. The researcher has taken secondary data for this study. The details of data covers i.e., police reports, various newspaper contents, magazines, articles, research papers and NCRB reports, MRTTH reports, ADSI reports etc. The data was analyzed descriptively as well as inferentially through the use of statistical software SPSS and MS excel.

### **Review of Literature:**

Review of literature is most important part in any of the research work. Many researchers have carried out research work in the area of road traffic accidents. Some of them have analyzed accident data in different ways such as, identification of black spot regions, weather conditions, vehicle conditions, driver mood, road structures etc. while, some of them have developed accident models for forecasting future accident trends and they have also proposed strategies for road safety. This study will carry out the different issues related to road traffic accidents and their control measures.

Fridstrom et al., (1995) carried out a study and measured the contribution of randomness, exposure, weather and daylight to the variation in road accident counts. To study these issues, a four-country segmented data base has been compiled, each segment consisting of monthly accidents counts, along with explanatory factors, in the various countries of Denmark, Finland, Norway, and Sweden. The study suggested that the relationship between exposure and accidents injury appears to be almost proportional, while it is less than proportional in the case of fatal accidents or death of victims. Together, randomness and exposure accounts for 80% to 90% of variation in data set.

Sayed et al., (1995) an accident-prone location in any country is defined as a location (section or intersection) that exhibits a higher potential for accidents than an established norm. this high potential has been expressed through a number of measures such as number of accidents at a location per time frame, severity and frequency of accidents. The study has also classified the causes of accidents as road, vehicle and

driver related factors. Some of the factors were road grade, speed limit, surface condition of the road, weather condition, lighting condition, time of the accident, severity and vehicle type, all with varying levels. The type of traffic flow and the characteristics of a road are significant factors in defining accident proneness. A transition condition, which alternates between free-flowing and congested condition contributes significantly to a road accident.

Edwards, J. B. (1998) investigated the relationship between the recorded weather and road accidents in England and Wales. Accident severity for various adverse weather categories of rain, fog, and high winds were compared with non-hazardous fine weather conditions. The results showed that accident severity decrease significantly in rain as opposed to fine weather.

Svensson & Hyden (2006) had focused on a study that was to be treated as a starting point for a more through description and analysis of safety related road user behavior in order to better understand the different parts forming the traffic safety processes.

Dinu & Veeraragavan (2011) was presented Random Parameter Models for Accident Prediction on Two-Lane Undivided Highways in India. Based on three years of accident history, from nearly 200 km of highway segments, is used to calibrate and validate the models. The results of the analysis suggest that the model coefficients for traffic volume, proportion of cars, motorized two-wheelers and trucks in traffic, and driveway density and horizontal and vertical curvatures are randomly distributed across locations. They have concluded with a discussion on modeling results and the limitations of the present study.

Ghods et al., (2012) worked on differential speed strategies increased the number and rate of car-truck overtakes over the range of volumes considered in this analysis. This suggests a negative effect on safety resulting from differential speed strategy applied to two-lane rural highways. On a positive side DSL and MSL strategies have reduced the number of cars to car overtakes at different volumes, hence increasing safety. This latter relationship suggests a calming effect of slower trucks on the speed of the traffic stream, which results in fewer interactions between cars. No significant effect was observed concerning differential speed control strategies and both average TTC and PTDO. The effect on TTC was due to volume; highest TTC for car-car and car-truck interactions at very low volumes, decreasing to a minimum in the range between 500 vph to 800 vph and increasing slightly thereafter. This indicator suggests the highest head-on risk is experienced in the mid volume region. The average speed of traffic decreases in a nonlinear fashion with volume with differential speed strategies indicating a downward shift in this relationship.

Park et al., (2012) studies the safety effect of wider edge lines was examined by analyzing crash frequency data for road segments with and without wider edge lines. The data from three states, Kansas, Michigan, and Illinois, have been analyzed. Because of different nature of data from each state; a different statistical analysis approach was employed for each state where an empirical analysis has been done, but before-after analysis of Kansas data, an interrupted time series design and generalized linear segmented regression analysis of Michigan data observed and a cross sectional analysis of Illinois data has made this study possible to sum-up with new findings. Although it is well-known that causation is hard to establish based on observational studies, the results from three extensive statistical analyses all point to the same findings. The consistent findings lend support to the positive safety effects of wider edge lines installed on rural, two-lane highways. In conclusion, this study lends scientific support to the positive safety effects of wider edge lines installed on rural two-lane highways. Although the magnitudes of crash reductions were somewhat different from state to state, the results point in the same direction.

Williamson & Zhou (2012) were examined the development of calibration factors for crash prediction models in the new Highway Safety Manual (HSM) for rural two-lane roadways in Illinois. The crash prediction modes (so called Safety Performance Functions (SPF)) in the HSM were developed using data from multiple states, therefore the models must be calibrated to account for local factors, such as weather, roadway conditions, and drivers' characteristics. In this study, two calibration factors were developed for two different SPFs to give a better prediction of crash frequencies on rural two-lane roadways in Illinois. This study determined the SPF that best predicts the crashes was developed specifically for rural two-lane Two-way roadways in Illinois. It is recommended that local SPFs be developed and compared to the HSM SPF when evaluating the safety of a roadway.

Apparao et al., (2013) stated that the advancement in GIS and GPS can be put forward to effective use in accident analysis. Although GIS has been used for over 30 years, its application in the transportation sector started very recently. For the identification of black spots GIS may serve as the best tool. A study was done on NH-58 to identify the accident black spots and safety deficit areas using GIS and GPS technology.

Mehar & Agarwal (2013) were highlighted the deficiencies in the present state of the art and also presents some basic concepts so that systematic approach for formulation of a road safety improvement program in India can be developed. The study presents basic concepts to develop an accident record system, for ranking of Safety hazardous locations, for identification of safety improvement measures and to determine priorities of safety measures. It is expected that this study will provide a systematic approach for development of road safety improvement program in India and thus pave the way for improving safety on Indian roads.

Meshram & Goliya (2013) were presented an analysis of accidents on small portion of NH-3 from Indore to Dhamnod. The data for analysis is collected for the period of 2009 to September 2011. More accidents occurred in Manpur region by faulty road geometry. The trend of accidents occurring in urban portion (Indore) is more than 35 % to rate of total accidents in each year. This may due to high speeds and more vehicular traffic. In the present study area, the frequency of fatal accidents is 2 in a week and 6 for minor accidents in a week. More number of accidents observed in 6 p.m. to 8 p.m. duration because in that time more buses are travels between villages and city. One fatal and five casualties are occurring per km per year in the study area. The volume of the trucks passing through study corridor is increasing by year. At Rajendra Nagar from 2000 onwards the traffic is reduced due to the construction of by passes in that area.

Shruthi et al., (2013) approached her study regarding the road accidents in south Indian metropolitan cities in different dimensions. She has been examined the injury and mortality pattern of the autopsy cases to draw public attention and to create awareness among the public for accident-free transportation.

Goel & Sachdeva (2014) conducted small study on National Highway-1 at Delhi to Ambala to Amritsar Road. The road was divided into small subsections 5 km of each and the data for road accidents from the past four years 2007 to 2010 was analyzed to identify the accident-prone zones and the study resulted that the stretch between 140-144 km is the risk prone zone to frequent accidents.

Theofilatos & Yannis (2014) was presented “a review of the effect of traffic and weather characteristics on road safety”. Despite the existence of generally mixed evidence on the effect of traffic parameters, a few patterns can be observed. For instance, traffic flow seems to have a non-linear relationship with accident rates, even though some studies suggest linear relationship with accidents. Regarding weather effects, the effect of precipitation is quite consistent and leads generally to increased accident frequency but does not seem to have a consistent effect on severity. The impact of other weather parameters on safety, such as visibility, wind speed and temperature are not found straight forward so far. The increasing use of real-time data not only makes easier to identify the safety impact of traffic and weather characteristics, but most importantly makes possible the identification of their combined effect. The more systematic use of these real-time data may address several of the research gaps identified in this research.

Vyas et al., (2014) made an effort on State Highway (SH-85) from Tavarekere to Magadi town Karnataka to identify the significant hotspots i.e., where road accident occurs frequently which is also termed as black spots.

Subbareddy & Prasad (2015) investigated the accident black spots using mixed traffic sheets in developed cities. The authors also suggested suitable remedial measures to develop an accidental prediction model which can reduce the life losses and injuries in the study area.

Kumar & Bansal (2016) conducted a study regarding the analysis of road accident in Hisar district at state of Haryana. The main objective of the study was to identify the scenarios behind road accidents, spots where accidents occur frequently in Hisar Sirsa road and Hisar Delhi bye-pass. The study had suggested policy upgradation such as traffic management, re-designing of acceleration, and deceleration tracks were suggested.

Moradi et al., (2019) worked on sleepiness and the risk of road traffic accidents that is a systematic review and meta-analysis of previous studies. The study was aimed to assess whether drowsy driving can increase road traffic accidents related deaths and injuries. Its findings concluded that meta-analysis (with high level of evidence) suggest a significant association between crash involvement and drowsy driving. It seems

that establishment of strategies to reduce any risk factors of road traffic accidents such as drowsy driving can be effective in decreasing traffic crashes.

Du et al., (2020) conducted a study on primary prevention of road traffic accident–related traumatic brain injuries in younger populations that is a systematic review of helmet legislation. The researcher has mentioned that road traffic accidents are the most frequent cause of severe traumatic brain injury (TBI), particularly among young populations worldwide. Helmets are proven to prevent injuries; however, estimates of helmet compliance are low globally. In this study 618 search results, 53 full-text articles were analyzed. The study concluded that helmet legislation is associated with increased helmet use among bicyclists and decreased road traffic accidents related head injuries and fatalities among motorcyclists and bicyclists.

### **Road Safety Policy at India Level:**

National Road Safety Council (NRSC) is the apex body for road safety which established under Section-215 of Motor Vehicle Act, 1988. It gives directions on implementation of road safety policies. Department of Road Transport and Highways, Government of India is the nodal agency for road safety in the country. A road safety policy was prepared by the Ministry of Road Transport and Highways in the year 1992 and adopted by the National Road Safety Council in 1994, Which contains following points, such as:

- Classification of the causes of accidents and preventive actions in terms of vehicle, driver, and engineering factors.
- List of safety features for vehicle design i.e., safety belt, air bags, collapsible steering, braking performances etc.
- Fitness certification and maintenance of vehicles.
- Proper training and effective licensing for drivers.
- Road design and geometric improvements to compensate for inadequacies of road users.
- Accident black spot investigation and rectification through road design.
- Design of road junctions, and design of roads in built up and residential areas.
- Traffic guidance, road signs, speed limit posts, and other traffic control devices.
- Road pavement marking, construction of footpaths/cycle tracks, bus bays, truck parking complexes, and other way side amenities etc.
- Traffic education and campaign on traffic discipline, which covers inclusion of traffic education in school curriculum, promotion and defensive driving etc.
- Enforcement of maximum speed limit, and campaign on helmet use, seat belt use, and curbing alcohol consumption among drivers etc.
- Emergency medical care services with emphasis on saving the lives of victims.

### **Major Causes of Road Traffic Accidents:**

Human error seems to be the major cause in majority of road traffic accidents. Examination on the operator or human causes will be a critical component for accident analyses. Investigation on the part played by the human component in the traffic system is to be considered very important among road safety problems. Skill of the operator and traffic scenario are other factors involved in collisions. It also caused because by stress, due to economic or family problems. These state of mind makes people more vulnerable to cause road traffic accidents (Muthusamy et al., 2015).

Carelessness is one of the causes of road traffic accidents in our country. Some of the examples include using mobile phone while driving, ignoring the red signals, not using seatbelts, not wearing helmets, overtaking to other vehicles, not giving proper side to pedestrians etc. In between these, over speeding is one of the reasons as severe injury which increases with collision speed and the lack of protection accounts for the most severe but preventable injuries after any of incidents.

The most important cause for alarming increase in number of road accidents is driving of vehicle in drunken state. Under the influence of alcohol and other intoxicated substances, driver lose the self-consciousness and control over the vehicle which ultimately forms the reason for road traffic accidents.

At last, Environmental factors such as, road conditions, visibility, weather condition, hilly and slopy roads and road texture plays important role in causing road traffic accidents. Other factors such as, age of the

vehicle, safety measures, drivers' fault, time and place, lack of awareness, decides the fatalities and the seriousness of the road traffic accidents.

### Control Measures of Road Traffic Accidents:

These are the various control measures such as:

- 1. Vehicles:** well-maintained vehicles with good break, light, and tire will reduce the road traffic accidents. More than 15 years older vehicles and highly polluted vehicles must be removed out. Its governmental duty to initiate all safety features in every vehicle.
- 2. Human Factor:** Drivers can significantly contribute to reducing the road traffic accidents. Issuing of driving license should be strictly based on the minimum proficiency acquired by the learners from designated driving schools. Minimum qualification should be fixed for the different categories of drivers. All drivers should be properly trained and well educated about the traffic rules. Carryout periodic medical check-up especially vision and hearing of the drivers. Training of medical first aid should be compulsory along with health education and traffic education for the general public to prevent the road traffic accidents. Apart from this, avoiding over seeding, avoiding alcohol during driving, obeying traffic rules, improving visibility, and appropriate road lightings will also help to reduce the occurrence of road traffic accidents.
- 3. Legislation:** Government should make rules for compulsory wearing of helmets by two-wheelers and using seat belts by four wheelers. Enforce traffic rules by the concerned authorities strictly. Removal of stray animals like cattle and removal of encroachments on footpath and road margins will enable smooth flow of traffic. Preventing unusual parking of vehicles on busy roads and intersections to ensure free flow of traffic. Police beat units should be develop in each of busy roads so that victim can be easily traced.
- 4. Evaluation:** It refers to those actions which aimed at determining interventions, programs policy work and various researches for the prevention of RTAs.
- 5. Empowerment:** It includes various programs aimed at changing attitudes, beliefs and behaviours in the general peoples by awareness campaigns on safe driving or defensive driving.
- 6. Management of accident victims:** The most important concern to giving adequate treatment to the accident victim in saving the injured should be done by the health personals and local peoples. Provision of medical care/first aid care facilities should be available in each of highways and busy roads. It must be assured to provision of ambulance and trained health personals in nearest hospitals so that each victim will not get any difficulty on treatment. Awareness creation among all sections of the society to treat accident victims with sympathy and without fear so that the morbidity and mortality can be reduced.

### Conclusion & Suggestions:

The purpose of this study is to present an in-depth analysis and overview of the road accidents in India. The results of various field work done on the road traffic accident in various countries have been reported in this paper. This literature study will help the researchers to have a nut shell view about the effect of RTAs and the safety measures to be followed to avoid RTAs.

The collected empirical details and various important statistics related to the road accident severity and the measures to reduce RTAs discussed in various studies were presented. Multifaceted review of various literatures has shown that accidents occurrences are the effect of multiple human, vehicle and environmental elements often interacting in a complicated manner to generate the initiation of the event. The cause of road traffic accidents are not just human error or driver negligence. There is need to view road traffic accident as an issue that needs urgent attention aimed at reducing the health, social and economic factors.

Road traffic accidents can be prevented, when Government of India and State Government must take action to address road safety in a holistic manner. It will require to involvement of multiple sectors such as, transport, police, health, education, and actions that address the safety of roads, vehicles, and road users. The effective interventions include designing safer infrastructure and incorporating road safety features into land-



use and transport planning, improving the safety features of vehicles, enhancing post-crash care for victims of road traffic crashes; setting and enforcing laws relating to key risks and raising public awareness.

Road transport is the most cost-effective modes of transportation in India both for freight and passengers, keeping in views its level of penetration in populated area. Exposure to adverse traffic environment is high in India, because of the unprecedented rate of motorization and growing urbanization fueled by high rate of economic growth. As a result, incidents of road accidents, traffic injuries and fatalities have remained unacceptably high.

It is not at all expected that road accidents will be totally removed from the country. The way to control road traffic accidents are our own hands but it is not a natural disaster. Ensuring about proper remedy must be considered by the policy makers before many more lives are taken away by this threat of road traffic accidents. It is such a case which does not occur by itself but operated by the careless drivers while driving aggressively. More strict and competent legislations should be introduced to bring the situation under control. An attempt has been made by this paper to highlight the cases of road traffic accidents in India.

Over speeding along with human issues like drivers' attitude, driving skill, stress, mood-off, and use of road by pedestrians are the main contributors in the road accidents. Speed restriction can play a significant role to reduce road crashes. The target to lower the rates of road accidents cannot be sustained without collective approach of all stakeholders working in road management. The government along with common people shall also be concern about the traffic laws to make joint commitment on road safety. Strict implementation of traffic rules and stringent punishments alone will not solve this problem, but change in mind set of riders, drivers, and road users realizing their responsibilities will bring about a change.

We have seen that most of countries have a multidisciplinary approach to traffic planning and road design. It is done by psychologists, engineers, doctors, sociologists, vehicle experts etc. But in India, road traffic accidents are still a civil engineering issue. Lessons can be learnt from the eminent guidelines and good practices for good behavior on the roads practiced in developed countries where safety, orderliness and discipline are ingrained in the citizens.

In other countries, the scenario of traffic management, road safety work, road transport mishappening and other related cases were managed by the road safety policing and other private security forces; but in India, it is the duty of each state police to maintain and manage the proper functioning of road and transport department. Some time, community policing will also help to maintain the law and order between local public and passengers. RTAs are a major but neglected global public health problem needs to be conservative efforts for effective and sustainable prevention.

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**Abbreviations:**

ADSI: Accidental Deaths and Suicides in India

DSL: Differential Speed Limits

GDP: Gross Domestic Products

GIS: Geographical Information System

GPS: Geographical Positioning System

HSM: Highway Safety Manual

MRTH: Ministry of Road Transport and Highways

MSL: Major Speed Limits

NCRB: National Crime Records Bureau

PTDO: Percentage Time Desire to Overtake

RTAs: Road Traffic Accidents

SPF: Safety Performance Functions

TBI: Traumatic Brain Injury

TTC: Time to Collision

USL: Uniform Speed Limits

