

# Safety on Roads in India

1Chirag Bhasin, 2Dr. R.R. Singh  
 1 Student of M.E. Transportation, 2 Professor & Head  
 Civil Engineering Department  
 Punjab Engineering College (Deemed to be University), Chandigarh

**Abstract - We all know that “Speed Thrills but Kills” instead of this, we still want to speed in our daily life. The deadly game of hunted and hunter is being played daily on Indian Roads from past many years with role of hunter is played by big vehicles and the vulnerable section and smaller vehicles are being hunted. In spite of huge improvement in infrastructure, vehicle designs, driver knowledge and hospitals still accidents are becoming more fatal in nature with every passing year. The major reason can be increase in speed. The researchers have traditionally identified the problems as lack of driver ethics and knowledge, road design issues and high traffic violations. Every year, road accidents in developing countries costs 2-3 % of worldwide gross domestic product. So, we can imagine how many losses we suffer every year only from road accidents in the form of human lives and money. Therefore, this problem needs to be taken into consideration seriously by the governments and actions needs to be taken as early as possible.**

**Keywords - Road Accidents, Fatalities, Economy, Deaths, Safety, Infrastructure, Enforcement**

## Introduction

Rapid economic growth is always connected to rapid expansion of road networking and road transportation. But as each coin has two sides, Unfortunately the rapid growth in road transportation also leads to an increased number of road crashes, injuries, and fatalities. Same is the case with Indian road networking and transportation as India being a developing country, aspiring to be the super power, is investing a lot of money in road transportation. A number of highways are being constructed all over the country throughout the year. On an average, 27 kilometres of road length was constructed everyday in 2017-18. India has the second largest road network in the world. At 1.70 km of roads per square kilometre of land, the quantitative density of India's road network is higher than that of Japan (0.91) and the United States (0.67), China (0.46), Brazil (0.18) and Russia (0.08). Therefore, due to such a huge and dense road network, road accidents in our country are very frequent. The frequency of traffic collisions in India is amongst the highest in the world. A National Crime Records Bureau (NCRB) report revealed that every year, more than 135,000 traffic collision-related deaths occur in India which is a death due to road accident in every 4 minutes.

## Issues & Challenges

Road traffic accident is the major evitable public health problems and is on the surge which can be accredited to increase in the number of vehicles, changes in the lifestyles of people and risky attitudes. India stands at top of the world when it comes to the frequency of traffic collisions. A National Crime Records Bureau (NCRB) report revealed that more than 1,35,000 traffic accident-related deaths occur in India every year. The situation is getting worsen with each passing year which aren't good signs for the people of the India. Most of the deaths due to traffic collisions in our country occurs at state and national highways mainly due to high volume of traffic and high speed of vehicles by the road users. National highways contribute only 2.7% of India's total road network, but carries about 40% of the total road traffic. Most of them have two lanes which is also one of the reasons of accidents on these highways as users want high speeds but easy manoeuvring is not possible because of high traffic and narrow roads according to the need or demand of road users.

## Causes responsible for road accidents

There are multiple factors that leads to the traffic collisions, consequently leading to deaths and injuries to the users. Some important major factors are as follows:

- **Speed:** With the increase in speed, the chances of occurrence of collision also increases as well as the degree of its consequences inflates. Lifestyle and mindset of the newer generation is way different from the older generations. They want speed in their lives in everything they do or at every place they go. Lack of patience also results in the increase of speed which further increases the probability of collision.
- **Inadequate Infrastructure:** Several factors constitutes to this cause of the traffic accidents like inappropriate design and layout of roads, lack of signals at crossings and median gaps, improper maintenance of roads, unavailability of footpaths, inappropriate road markings, ignorance of driver etc.
- **Population Growth and Increasing Number of Vehicles:** This is one of the major cause which constitutes to road accidents. As the population is growing at a very fast rate, the number of vehicles are also increasing rapidly which creates risky road situations for which road infrastructures are not efficiently prepared to organise the heavy flow of traffic.
- **Drunken Driving and Drugs:** Nearly half of the nations of the world lack evidence on deaths due to driving while consumption of alcohol and drugs. Drunken driving has been stated as a major factor for severe road accidents.

- **Use of mobile phones:** There are many types of distractions that leads to impaired driving but the major contributor to the road accidents is use of the mobile phones while driving. According to different surveys by different governmental and private agencies, it has been found that the drivers who use phones during driving have four times more chances of becoming a victim of road accident in comparison to those who do not indulge in such practice.
- **Enforcement of Laws:** Less than one tenth of the countries of the world have sufficient laws which addresses risk factors of road accidents such as overspeed, drunken driving, overloading of the vehicle and the use of safety devices such as seat belts, child restraints and helmets. Firm or rigorous drunk and driving laws help to safeguard about two-third of the population globally.

#### Factors responsible for casualties due to road accidents

- **Human Carelessness:** Driver's fault is the main reason for majority of the accidents and deaths due to it. Carelessness of the driver accommodates to about 70-80 % of the road accidents. The major constituents of human carelessness are not following the traffic rules like crossing the speed limits, traffic signals, use of mobile phones while driving, drink and driving etc.
- **Age and Gender:** About half of the accident victims in the traffic collisions lies in the age group of 25 to 65 years, followed by the age group of 15 to 24 years. More than 50% of the casualties as well as deaths due to road accidents are of the productive age group as these people are expected to use the roads more. Of them, majority were males which can be due to the fact that generally males are more involved in the work outside of homes in comparison to females and therefore more vulnerable to road accidents. Various studies show that almost two-third victims of the road accidents are below 40 years of age.
- **Safety Devices:** Evidence on the use of seat belts and helmet is meagre. Wearing a seat-belt decreases the chances of fatality in the person sitting in the front seat by 40–70% and that of persons sitting on the rear seat by 30–80%. Appropriately wearing a helmet while riding a two-wheeler can reduce the risk of death by almost 40% as well as the threat of severe injuries by more than 75%. Also, use of child restraints reduces casualties by approximately 70% and 50% in infants and toddlers respectively. Only about one-third of the global population have executed child restrained laws. Unfortunately, we do not have child restrained laws in our nation. Although, laws on road safety do exist in our country but their implementation is very fragile. As per the Supreme Court of India, the execution of these laws is a state responsibility.
- **Rescue Operations:** Delays in rescue operations have been generated due to the increasing number of vehicles which leads to jamming problems in the nation in providing required medical services is one of the causes of mortality due to road accidents. Also, no emergency lanes are designed on most of the roads due to lack of availability of space or funds and where there it is present, it is used by the common traveller for their comfort.
- **Mode of Transport:** Pedestrians, cyclists and two-wheelers account for majority of all deaths due to road accidents. People travelling in small vehicles are more vulnerable as far as deaths and injuries are concerned.

#### Trends of fatalities and injuries due to road accidents in India

According to the World Health Organisation (WHO), the death rate due to road accidents in India has risen from 16.81 per one lakh in 2009 to 18.9 per one lakh in 2013 and it has increased a bit as of now in 2018. Number of deaths and injuries because of road accidents in India in last decade (i.e. between the years 2001 and 2011) have been raised by 5.8% and 2.4% respectively and it is expected to rise further by 8% & 3.5% respectively by 2020. Out of the total road accidents, the proportion of severe ones have increased significantly from 18.1% to 24.4% from the year 2001 to 2011, also the casualties have increased by 1.3% in the year 2012 compared to 2011. At present, a person dies in every four minutes on Indian road due to road accident on the Indian road and it is further expected to rise to one death in every three minutes by 2020. The mortality rate due to road accidents have been increasing by a huge number that is, approximately 8% every year.

#### Preventive measures or Counter-measures

Several different areas with appropriate counter-measures are likely to bring about considerable improvements as far as safety on roads in India is concerned. These are as follows:

- **Pedestrians, other non-motorists, and slow vehicles on Urban roads and highways:** These collisions involve situations with higher speeds of motorised traffic and relatively lesser frequency of subjection to non-motorists. This problem can be solved by separating these two types of traffic. For this, designs of urban roads and highways in India will have to be modified like providing separate lanes for pedestrians and slow moving vehicles for convenient road crossing facilities at regular intervals. In future, the recommended focus should be on the use of technology such as in-vehicle pedestrian-detection technology, forward collision warning systems etc.
- **Motorised two-wheelers and small cars in urban areas:** For this category, following measures should be taken such as enforcement of helmet-use laws for motorised two-wheelers, improved lighting and signalling on two-wheelers and motorbike-friendly front ends of vehicles for crashes involving motorcycles, mandatory airbags for all cars, may prove to be cost effective when enforcement measures are lacking and improved solidity of small cars for crashes of small cars.
- **Over-involvement of trucks and buses:** To overcome this, separate lanes for trucks and buses could be provided and they should be enforced to drive on those lanes. Also, speed control by use of data loggers and GPS systems, and for both trucks and buses, safer vehicle fronts and improved vehicle visibility especially in case of trucks which is a cause of many accidents during night time.

- **Night time driving:** Driving at night time has always been risky on our Indian roads especially on the roads with undivided carriageway. Many cases of side on collisions can be found at median gaps due to absence of signals. Also, many factors affect the night time driving such as fatigue, visibility, drivers driving on wrong side and most importantly consumption of alcohol. Subsequently, making of stricter laws and especially their implementation should be done for the drink and drive or drivers driving on wrong side. Also, improved lighting on all type of vehicles and signals installation at every gap at medians can reduce the risk of collisions at night.
- **Engineering and Enforcement:** It is one of the most important factors that can help in providing the immunity against the road accidents. Improved geometric and pavement design of roads can substantially help in reducing the number of accidents. Also, enforcement of laws is necessary as well as in our country we have laws against the defaulters but implementation of those laws isn't up to the required mark, which is necessary to overcome this problem of road accidents.

### Conclusion

This paper is meant to explore for accessible published information which in turn might help the regulatory organisations as well as practitioners to make use of it. In India, Road accidents are on the rise but it is one of the vital evitable public health problems and therefore can be avoided if necessary measures can be taken care of. The environment along the road side should be such that in case of any error, the resultant should not be a death. This is a big task among us but it can be achieved. Economy is an important aspect but putting economy always in front of design is like putting the cart in front of horse. Road accidents results in a number of unfavourable effects that can be economical, physical, psychological and social. So, it is not enough to administer measures that improve laws, roads, vehicles, road-user behaviour, and response after collision, the key is to structure an effective and efficient management of safety on roads in India.

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