



# A Study Of Road Accidents In Maharashtra And Nashik District

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## Abstract:

Transport plays a very important role in the economic, social and cultural development of the country, just like blood vessels work for the smooth functioning of the human body; similarly transport networks play a special role in the development of the country. There are many types of transportation such as road transportation, rail transportation, water transportation, and air transportation, but among all these modes of transportation, road transportation is used the most. Each year, a staggering 1.3 million people are killed on roadways around the world and millions are injured or disabled. Road crashed are estimated to be the eighth leading cause of death globally for all age groups and leading cause of death for children and young people in the 5-29 age group. India accounts for the highest number of road crashes globally, with 1.5 lakh people being killed and more than 4.5 crippled annually in 4.5 lakh road crashes with losses accounting to 3.14 of the GDP. Maharashtra has reported 13528 deaths which is an increase of 14 % in the number since 2020. Two and three wheelers occupants topped in the number of deaths and non-fatal injuries of all road users. Two wheelers and three accounted for 54 % of all deaths followed by pedestrians with 20 % the vulnerable road users including pedestrians, two and three wheelers and the cyclists accounted for 75 % of total deaths. Men between 25 to 45 years of age accounted for most deaths and non-fatal injuries. Most two wheelers deaths and injuries caused by other two wheeler and cars. [1]. A total of 1239 accidents occurred in Nashik district in the year 2020, in which 746 people were killed and 801 were injured, mode of accidents by motorcycle which is 36%, cars 19% and pedestrians 14% percent and truck 5 % and rest of accidents seen in the other modes. Most of the accidents occurred in the month of December and highest time observed 07.00 pm To 9.00pm. The research paper is based on secondary data and the secondary data is taken from Maharashtra Road Crash Report 2021. The main objective of the research is to find out the reasons behind the road accidents and to find out the measures to reduce them.

**Keywords:** Transportation, Road crash death, Fatal Crashes, Fatalities, Injury, Hit and Run. Collided.

**Introduction:** Travel and tourism are fundamental to human beings, since time immemorial human beings have been traveling from one place to another for various reasons, as well as transportation of goods to fulfil various human needs. Transport plays a very important role in the economic, social and cultural development of the country, just like blood vessels work for the smooth functioning of the human body; similarly transport networks play a special role in the development of the country. There are many types of transportation such as road transportation, rail transportation, water transportation, and air transportation, but among all these modes of transportation, road transportation is used the most. Each year, an impressive 1.35 million people are killed on roadways around the world and millions are injured or disabled. Road crashes are estimated to be the eighth leading cause of death globally for all age groups and leading cause of death for children and young people in the 5-29 age group[1].

In addition to the human suffering caused by road traffic injuries, they also incur a heavy economic burden on victims and their families, both through treatment costs for the injured and through loss of productivity of those killed or disabled. More broadly, road traffic injuries have a serious impact on national economies, costing countries 3% of their annual gross domestic product. India accounts for the highest number of road crashes globally, with 1.5 lakh people being killed and more than 4.5 crippled annually in 4.5 lakh road crashes with losses accounting to 3.14 of the GDP [2].

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### **Review of Literature:**

The research has been conducted on the frequency of accident occurred on the National Highway-6, by the V.S. Landge, NH-6 extends from Bhandara to Amravati 82 km, the Length of homogenous sections under study from 638 km to 647 km total length is 9 km, in this section accident rates has been more observed 88.027 than other section, there the actual width of road 17.81 M. vertical curve is 15.66 M, Horizontal curve 32.29 M and No of junction 2.83 are establish [4].

A case study on Mumbai- Agra National Highway-3 conducted by Pukar Nikam & other Authors, Mumbai- Agra National Highway 3 is a major route from Mumbai to Agra, the route has Rahud Ghat near Chandwad. Authors have explored the causes of accidents, there are many causes of accidents such as natural causes, vehicle breakdown, drunk driving, over speeding, low visibility, and overtaking etc. They have done two case studies in the first case study due to brake failure of a truck in Rahul ghat, this truck rams into a moving alto car from behind causing injury to people and damage to the vehicle. In the second case study the cause of the bus and truck accident, the driver of the bus overtakes the truck at a speed of 70 kmph while the bus driver is asleep and the truck goes out of control hitting the side of the truck and the bus and the truck hit a barricade [5].

According to official statistics 155,622 persons were killed and 371,884 injured in road traffic crashes in India in 2021 (NCRB, 2022). This corresponds to a death rate of 11.4 per 100,000 populations. Development of street designs and traffic calming measures that suit mixed traffic with a high proportion of motorcycles and non- motorized modes, Highway design with adequate and safe facilities for slow traffic, Pedestrian impact standards for buses and trucks, Evaluation of policing techniques. The most important enforcement issue in India is speed control. Without this it will be difficult to lower crash rates as a majority of the Victims are vulnerable road users. The second most important measure to be taken seriously is driving under the influence of alcohol. 30%–40% of fatal crashes in India may have alcohol involvement [6].

A study has been conducted on Multi Criteria Decision Analysis of Accident data for Indian states by Pankaj Sharma & other authors, Analysed Madhya Pradesh has the highest Hit and Run accidents and highest number of persons with minor injuries in 2019, while Maharashtra has the highest number of persons killed in Hit and Run accidents and highest number of persons with grievous injuries. Tamil Nadu has the highest number of accidents in residential areas and market or commercial areas, while highest number of persons killed in residential areas market or commercial areas were from Maharashtra and Uttar Pradesh respectively in 2019 [7].

A total of 4,61,312 accidents were reported by all States and Union Territories (UTs) during the calendar year 2022, of which, 1,55,781 (33.8 %) were fatal accidents. The number of persons killed in road accidents were 1,68,491 and caused injury to 4,43,366 persons Total number of Road Accidents registered an increase by 11.9% in 2022 compared to the previous year 2021. The number of persons killed and the number of persons injured had also increased by 9.4% and 15.3% respectively in 2022 as compared to the year 2021[8].

**Objectives:** The Following objectives has been selected for the research study

1. To examine various factors contributed for road accidents.
2. To find out the reasons behind the road accidents and to find out the measures to reduce them.

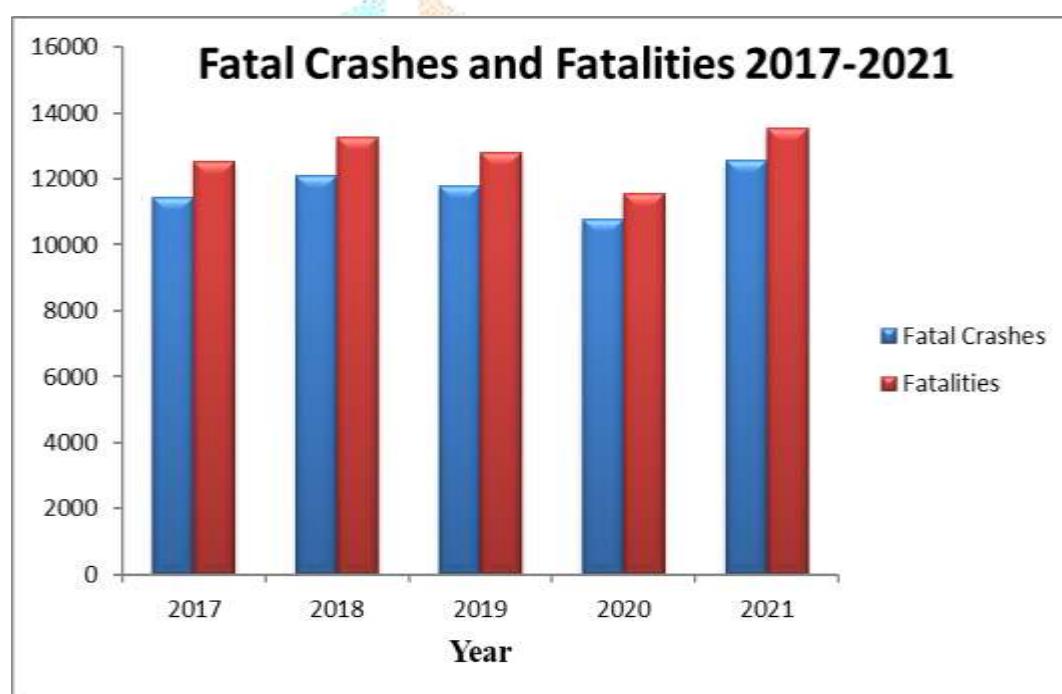
### Study Area:

The present research work is focused on the Maharashtra and Nashik district. It is located between  $15^{\circ}44'$  to  $22^{\circ}17'$  North latitude and between  $72^{\circ}36'$  to  $80^{\circ}564'$  East longitude at west part of India. Total area occupied by the Maharashtra is 307713 Sq.km. Total population of Maharashtra was 112.3 million as per census 2011. For research study Mumbai- Agra NH-3 Highway has been selected for the present study [9].

### Data and Research Methodology:

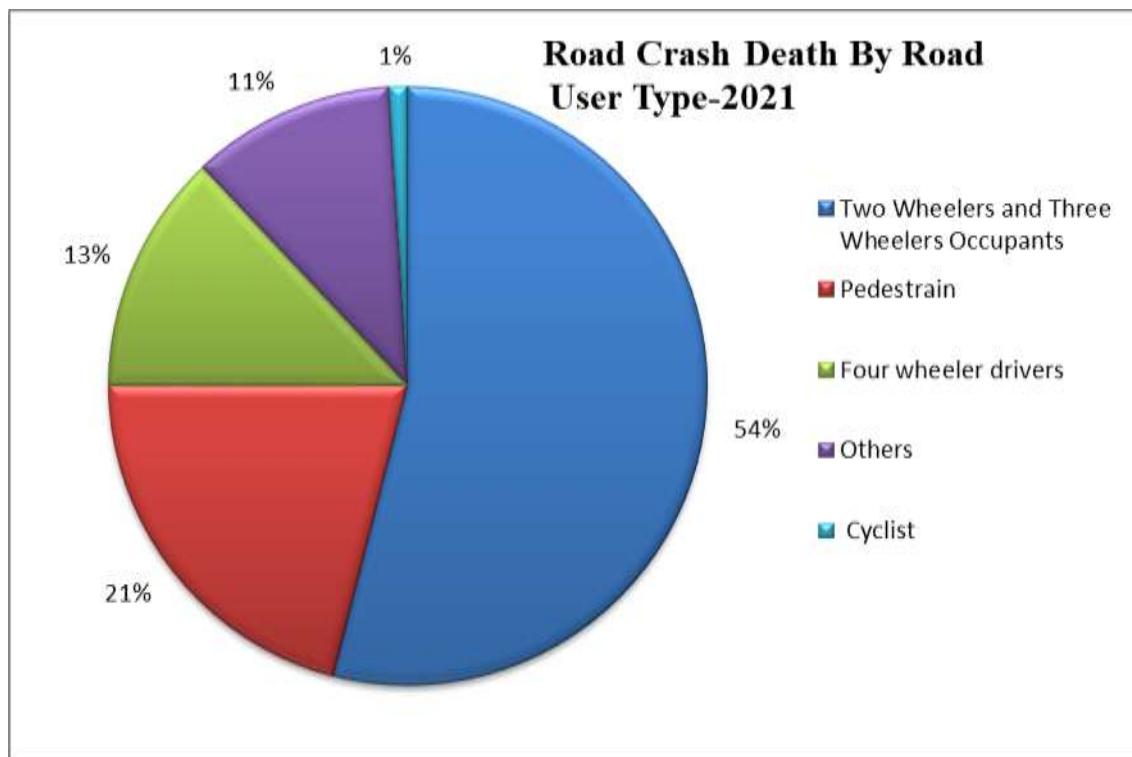
Present study is based on secondary data it has been collected from various publish sources such as road accidents report of India and Research paper, Newspaper etc. For the present research for analysing accidents typically involves a combination of qualitative and quantitative approaches. analysing accident data to identify trends, patterns and correlation using statistical techniques like regression, and time series analysis, case study method has been used for identifying causes and contributing factors and GIS techniques has used for prepare the map.

### Results and Discussion:



### Source: Maharashtra Road Crash Report -2021

Above chart shows a five year trend in the number of crashes and deaths in Maharashtra. Maharashtra has reported 13528 deaths in 12554 fatal road crashes in 2021. The number of deaths has increased by 14 % since 2020.



**Source: Maharashtra Road Crash Report -2021**

The above figure shows two and three wheelers occupants accounted for 54 % of deaths. A total of 75 % of deaths were among vulnerable road users, which includes pedestrian, motorcyclist, three wheeler occupants and cyclist.

In this research study some selected major accidents in Maharashtra and Nashik district. A case study of accident on Samrudhi Highway near Buldhana, the fatal accident occurred on the Mumbai-Nagpur Samrudhi Highway near Buldhana resulting in the loss of 25 lives including three children, the accident occurred when a private sleeper coach bus traveling from Nagpur to pune caught fire after hitting an iron pole, grazing past the side wall of bridge, hitting a median, and overtaking, eight people were injured and a total of 33 passengers were in the bus, the police investigated that the driver may have fallen as sleep behind the wheel and lost control. The accident took place on July 1, 2023 at 1.35 a.m. near Pimpalkuta village [10].

A tragic container accident occurred on Mumbai – Agra National Highway-3 in Dhule district on July 4, 2023 at least 15 people died in the accident more than 20 people were injured, with some critical condition the brakes of container failed leading to the accident, the container truck, being driven at full speed, crashing with a white car and another three vehicles. As truck collided with vehicle, there were plumes of dust in the air; some people who were standing on the road side were hit as result of the collision and container ramming into hotel [11].

The accident occurred on the Mumbai- Agra Highway Rahud Ghat near Chandwad in Nashik district MSRTC bus carrying about 45 passengers rammed onto a truck, the accident happened on April 30, 2024

between 9.00 am to 9.30 am, According to reports at least 6 people were killed and 15 were injured, the bus was coming towards Vasai from Jalgaon when it hit in a bid to overtake it. The bus was torn half way in the collision. The accident occurred due to the lane cutting of truck and bus rammed on the truck [12].

The accident occurred near Adgaon on the Mumbai- Agra highway around 10.30 pm on Friday July, 13 2024, four people were killed and two injured after a Tata Tempo collided with a car due to tire burst on a highway in Maharashtra's Nashik district an official said. The tempo heading towards Ozar from Nashik suffered tyre burst loaded the divider and collided with a Brezza car coming from the opposite direction. The victims were on their way to Nashik from Satana town [13].

A private bus operated by Chitamani travels caught fire after colliding with a trailer truck on Nashik-Aurangabad highway in Nashik city, the accident resulted in 12 fatalities including two year old child and 43 injured, the bus which was headed to Mumbai from Yavatmal, was carrying passengers beyond its capacity and collided with truck due to the driver's failure to negotiate a square at the intersection. the accident took place at October 8, 2022 at 5.15 am near Mirchi hotel, the driver of the coal –laden truck and the ill-fated bus failed to negotiate the square at the intersection and didn't apply brakes as a result the bus driver directly hit the truck's fuel tank on the side and caught fire [14].

I am a resident very close to the accident site and this accident occurred the truck was coming Amruthdham to Takli village but due to a small breaker before the intersection, the truck driver hit the Aurangabad road at high speed without braking, at the same time Chitamani travel bus from Aurangabad to Nashik hit the truck due to which the truck got fuel, After the tank burst, the bus caught fire and the people in the bus were killed in the fire.

Actually the direction from which the truck was coming is downhill, and before the intersection, the truck came at a high speed on Aurangabad road, thus the accident took place, in fact, if there was a big breaker at this intersection, the accident would not have happened. After the accident in which many people lost their lives, now big breaker have been installed at this place and signals have also been installed.

### **Conclusion:**

There are many causes of accidents, mainly human error, such as speeding, drunk driving, signal jumping, not wearing seat belt and helmet, overtaking etc. Also, road design includes curves in the road, high dips in the road, lack of breaker at certain major intersections, pot holes etc. and vehicle accidents are caused due to poor weather conditions, poor visibility, vehicle breakdown, brake failure, tire burst etc.

After studying the above accidents it is found that in case study I the bus accident occurred due to sleepiness of the driver. In case study II due to brake failure of the container vehicle, the container rammed several cars at high speed and rammed into the hotel, in case Study III, the bus accident happened when the bus was overtaking a truck at Rahul Ghat on the Mumbai-Agra highway when the truck suddenly cut the lane. In case study IV a Tata Tempo crossing the divider on the Mumbai-Agra Highway near Aadgaon

towards Ozar was spotted on the Brezza car coming in the opposite direction in the another lane, which led to the accident. The V accident appears to have occurred only due to a fault in road design as there was a very small breaker before the intersection, resulting in the death of several people.

### Measures:

The vehicle should be regularly maintained and repaired. A driver should get enough sleep. At the same time, there should be two drivers for long distances. While overtaking your vehicle, you should warn the following vehicle by giving a horn and flashing lights. The speed of the vehicle should be controlled; the vehicle should not have more passengers or load than the capacity. Engineers should take care while constructing the road such as minimization of road bends, minimization of rise and fall in the road, if there are slopes and curves should be breaker. If a minor road meets a major highway, there should be a system of signals and big breaker, and most importantly, traffic rules should be followed.

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